Antibiotikabehandling ved peritonitt, cholangitt og cholecystitt – systematisk litteratursøk med sortert referanseliste

Notat fra Kunnskapssenteret
Systematisk litteraturliste
Mai 2011

kunnskapssenteret

Bakgrunn: Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Helsedirektoratet å utføre et systematisk litteratursøk med påfølgende sortering av mulig relevante publikasjoner. Oppdraget var å finne litteratur/forskning om effekt av antibiotikabehandling ved peritonitt, cholangitt og cholecystitt. **Metode:** Vi utarbeidet et systematisk litteratursøk. Det ble søkt i bibliografiske databaser etter vitenskapleige publikasjoner, retningslinjer og behandlingsanbefalinger. Søket ble utført i mars 2011. To forskere gikk uavhengig av hverandere gjennom identifiserte publikasjoner/referanser og vurderte relevans i forhold til inklusjonskriteriene. **Resultater**: • Vi identifiserte totalt 889 referanser. Av disse vurderte vi 179 som mulig relevante. • Referansene vedrørende effekt av antibiotikabehandling ble sortert i grupper for henholdsvis: peritonitt, cholangitt eller cholecystitt og intraabdominale infeksjoner. • Treff i elektroniske kliniske oppslagsverk er sortert separat.

(fortsetter på baksiden)

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Nasjonalt kunnskapssenter for helsetjenesten fremskaffer og formidler kunnskap om effekt av metoder, virkemidler og tiltak og om kvalitet innen alle deler av helsetjenesten. Målet er å bidra til gode beslutninger slik at brukerne får best mulig helsetjenester. Kunnskapsenteret er formelt et forvaltningsorgan under Helsedirektoratet, men har ingen myndighetsfunksjoner og kan ikke instrueres i faglige spørsmål.

Nasjonalt kunnskapssenter for helsetjenesten, Oslo, Mai 2011

Hovedfunn

Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Helsedirektoratet å utføre et systematisk litteratursøk med påfølgende sortering av mulig relevante publikasjoner. Oppdraget var å finne litteratur/forskning om effekt av antibiotikabehandling ved peritonitt, cholangitt og cholecystitt.

Metode

Vi utarbeidet et systematisk litteratursøk. Det ble søkt i bibliografiske databaser etter vitenskapleige publikasjoner, retningslinjer og behandlingsanbefalinger. Søket ble utført i mars 2011. To forskere gikk uavhengig av hverandere gjennom identifiserte publikasjoner/referanser og vurderte relevans i forhold til inklusjonskriteriene.

Resultater

- Vi identifiserte totalt 889 referanser. Av disse vurderte vi 179 som mulig relevante.
- Referansene vedrørende effekt av antibiotikabehandling ble sortert i grupper for henholdsvis: peritonitt, cholangitt eller cholecystitt og intraabdominale infeksjoner.
- Treff i elektroniske kliniske oppslagsverk er sortert separat.

Tittel:

Antibiotikabehandling ved peritonitt, cholangitt og cholecystitt – systematisk litteratursøk med sortert referanseliste

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Publikasjonstype:

Systematisk litteraturliste

En systematisk litteraturliste er resultatet av å

- søke etter relevant litteratur ifølge en søkestrategi og
- eventuelt sortere denne litteraturen i grupper presentert med referanser og vanligvis sammendrag

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Svarer ikke på alt:

- Ingen kritisk vurdering av studienes kvalitet
- Ingen analyse eller sammenfatning av studiene
- Ingen anbefalinger

Hvem står bak denne publikasjonen?

Kunnskapssenteret har gjennomført oppdraget etter forespørsel fra Helsedirektoratet

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Når ble litteratursøket utført?

Søk etter studier ble avsluttet Mars 2011.

Innhold

Forord

Nasjonalt kunnskapssenter for helsetjenesten og Helsedirektoratet fikk i oppdrag fra Else Johanne Rønning ved Vestre Viken HF å finne litteratur om effekt av antibiotikabehandling av peritonitt, cholangitt og cholecystitt. Oppdragsgiver er deltaker i arbeidet med nasjonale retninglinjer for bruk av antibiotika i sykehus som lages i regi av Helsedirektoratet. Denne oversikten er en liste over litteratur som kan være relevant dokumentasjonsgrunnlag for de nye nasjonale retningslinjene.

Prosjektgruppen har bestått av:

- Tove Ringerike, seniorforsker, Kunnskapssenteret
- Ingvil Sæterdal, seniorforsker, Kunnskapssenteret
- Malene W. Gundersen, bibliotekar, Helsedirektoratet

Gro Jamtvedt	Marianne Klemp	Ingvil Sæterdal
Avdelingsdirektør	*Seksjonsleder*	*Prosjektleder*

Innledning

Styrker og svakheter ved "systematisk litteratursøk med sortering"

Ved litteratursøk gjennomfører vi systematiske litteratursøk for en gitt problemstilling. Resultatene fra søket blir i sin helhet overlevert oppdragsgiver, eller vi kan også gjennomgå søkeresultatet og sortere ut ikke-relevante artikler. Dette gjøres basert på tittel og eventuelt sammendrag. Artiklene innhentes ikke i fulltekst. Manglende innhenting av artikler i fulltekst gjør at vi kan ha inkludert titler som vil vise seg ikke å være relevante ved gjennomlesning av fulltekst. Vi benytter kun databaser for identifisering av litteratur og kan derfor ha gått glipp av potensielt relevante studier. Andre måter å identifisere studier på som søk i referanselister, kontakt med eksperter på fagfeltet og upublisert litteratur blir ikke utført i dette oppdraget. Vi gjennomfører ingen kvalitetsvurdering av artiklene.

I en systematisk oversikt eller HTA rapport ville vi videre innhentet artiklene i fulltekst for endelig vurdering opp mot inklusjonskritene. Inkluderte studier ville blitt kvalitetsvurdert i henhold til våre sjekklister. Resultater ville blitt sammenstilt og diskutert.

Begrunnelse for valg av søkestrategi

I dette prosjektet har vi søkt systematisk, men noe minde uttømmende enn om det skulle vært til en systematisk oversikt eller HTA rapport. Vi har søkt i elektroniske kilder, men ikke etter grå litteratur eller liknende. Søket er gjort for hele tidsperioden databasen dekker bakover i tid, da antibiotikabehandling ikke er et nytt fagfelt.

For søkene i Medline og EMBASE har følgende innebygde Clinical Queries-filtre fra Ovid blitt brukt for å øke spesifisiteten i søket:
Ovids filtrer i Medline:
- Clinical queries "therapy (specificity)" og "reviews (specificity)".
Ovids filtrer i EMBASE:
- Clinical queries "treatment (2 or more terms high specificity)" og "reviews (2 or more terms high specificity)".

Problemstilling

Vi har søkt etter litteratur som skal belyse problemstillinger knyttet til effekt av antibiotikabehandling av primær og tertiær peritonitt, cholangitt og cholecystitt.

Det var presisert i bestillingen at sekundær peritonitt og skleroserende cholangitt ikke var relevant for dette søket.

Metode

Litteratursøking

Vi søkte systematisk etter litteratur i følgende bibliografiske databaser:

- Embase
- Medline
- Cochrane Library
- CRD

Forskningsbibliotekar Malene W. Gundersen planla og utførte samtlige søk. Den fullstendige søkestrategien er vist i vedlegg. Søk etter studier ble avsluttet 3. mars 2011.

Vi la bestillingen til grunn ved utarbeiding av litteratursøket og søkte etter artikler som oppfylte våre inklusjonskriterier for populasjon og intervensjon. For å finne systematiske oversikter og randomiserte kontrollerte studier ble Ovids Clinical Queries-filtrer brukt ved søkene i Medline og EMBASE.

Vi utførte i tillegg søk i utvalgte elektroniske kliniske oppslagsverk som skal være kunnskapsbaserte (Best Practice, Clinical Evidence, UpToDate) og databaser over retningslinjer (National Guidelines Clearinghouse, G-I-N). Fullstendig liste er gjengitt i vedlegg.

Inklusjonskriterier

Populasjon:	Voksne pasienter med peritonitt, cholangitt og cholecystitt med unntak av sekundær peritonitt og skleroserende cholangitt
Tiltak:	Behandling med antibiotika, ulike doser og varighet
Sammenlikning:	Behandling med antibiotika, ulike doser og varighet
Utfall:	Ikke presisert
Studiedesign	Systematiske oversikter, retningslinjer som baserer seg på systematiske søk/oversikter, randomiserte kontrollerte studier
Språk:	Ingen språkbegrensninger i søket

Ekslusjonskriterier

Referanser som omhandler antibiotikaprofylakse.

Artikkelutvelging

To forskere gikk gjennom alle titler og sammendrag for å vurdere relevans i henhold til inklusjonskriteriene. Vurderingene ble gjort uavhengig av hverandre og sammenlignet i etterkant. Der det var uenighet om vurderingene, ble inklusjon eller eksklusjon avgjort ved konsensus.

Utvelgelse av litteratur ble kun gjort basert på tittel og sammendrag. Vi bestilte ikke artiklene i fulltekst.

Resultat

Resultat av søk

Søket resulterte i 889 referanser fra bibliografiske databaser. Vi vurderte 179 av de identifiserte referansene til å være mulig relevante i henhold til inklusjonskriteriene.

Hovedårsaken til eksklusjon var at publikasjonene ikke oppfylte inklusjonskriteriene for studiedesign (systematiske oversikter, retningslinjer som baserer seg på systematiske søk/oversikter, randomiserte kontrollerte studier). Vi har også ekskludert studier som tydelig omhandler antibiotikaprofylakse.

Resultat av sorteringen

Vi sorterte referansene i 3 grupper ut fra hvilken pasientgruppe som var inkludert i publikasjonen, tabell 1. Vi presenterer referansene sortert i de ulike gruppene og listet alfabetisk etter førsteforfatter innen hver gruppe men vi har ikke videresortert på type pulikasjon innen hver gruppe. Vi oppgir forfattere, tittel på publikasjonen, publikasjonssted og sammendrag av artikkelen slik de fremkom i de bibliografiske databasene.

Søk i utvalgte elektroniske kliniske oppslagsverk resulterte i 125 treff. De vi tror er mest relevante er listet i tabell 2.

Tabell 1: *Antall artikler sortert etter pasientgruppe*

Pasientgruppe	Antall referanser:
Peritonitt	91
Cholangitt eller Cholecystitt	28
Intra-abdominal infection	60

Tabell 2: *Referanser fra elektroniske kliniske oppslagsverk*

Tittel på referanse	Database
Treatment and prophylaxis of spontaneous bacterial peritonitis	UpToDate
Microbiology and therapy of peritonitis in continuous peritoneal dialysis	
Acute cholangitis	
Treatment of acute cholecystitis	
Acute cholangitis	
EASL clinical practice guidelines on the management of ascites, spontaneous bacterial peritonitis, and hepatorenal syndrome in cirrhosis	NHS Evidence - National Library of Guidelines
Cholecystitis - acute	
Diagnosis and management of complicated intra-abdominal infection in adults and children: guidelines by the Surgical Infection Society and the Infectious Diseases Society of America.	National Guideline Clearinghouse

Referanseliste for peritonitt (bukhinnebetennelse)

1. Peritonitis: dual treatment strategy of operation and antibiotics. Chirurg 1997;68(8:Suppl):Suppl-4.
   Ref ID: 489

2. Alaniz C, Regal RE. Spontaneous bacterial peritonitis a review of treatment options. P and T 2009;34(4):204-13.
   Ref ID: 48

3. Angeli P, Guarda S, Fasolato S, Miola E, Craighero R, Piccolo F, et al. Switch therapy with ciprofloxacin vs. intravenous ceftazidime in the treatment of spontaneous bacterial peritonitis in patients with cirrhosis: similar efficacy at lower cost. Aliment Pharmacol Ther 2006;23(1):75-84.
   Ref ID: 386
   Abstract: BACKGROUND: Intravenous administration of a third-generation cephalosporin is optimal antibiotic treatment for spontaneous bacterial peritonitis. AIMS: To compare an intravenous-oral step-down schedule with ciprofloxacin (switch therapy) to intravenous ceftazidime in the treatment of spontaneous bacterial peritonitis, and to evaluate the impact of terlipressin and albumin in the treatment of type 1 hepatorenal syndrome on mortality. METHODS: A total of 116 cirrhotic patients with spontaneous bacterial peritonitis, were randomly given switch therapy with ciprofloxacin (61 patients) or intravenous ceftazidime (55 patients). All patients who developed type 1 hepatorenal syndrome were treated with terlipressin (2-12 mg/day) and albumin (20-40 g/day). RESULTS: Resolution of infection was achieved in 46/55 patients treated with ceftazidime (84%) and in 49/61 patients treated with ciprofloxacin (80%, P = N.S.). An intravenous-oral step-down schedule was possible in 50/61 patients (82%) who received ciprofloxacin; 45/61 patients (74%) were discharged before the end of antibiotic treatment and completed it at home. The mean saving per patient due to the reduction of hospital stay

in the ciprofloxacin group was 1150 . Type 1 hepatorenal syndrome was treated successfully in 12/19 patients (63%). As a consequence, the in-hospital mortality rate due to infection was 10%. CONCLUSIONS: Switch therapy with cephalosporin is more cost-effective than intravenous ceftazidime in the treatment of spontaneous bacterial peritonitis in cirrhotic patients who are not on prophylaxis with quinolones

4. Anwar N, Merchant M, Were T, Tooth A, Uttley L, Gokal R. A prospective, randomized study of the comparative safety and efficacy of intraperitoneal imipenem versus vancomycin and netilmicin in the treatment of peritonitis on CAPD. Perit Dial Int 1995;15(2):167-71.
   Ref ID: 516

5. Ariza J, Xiol X, Esteve M, Fernandez BF, Linares J, Alonso T, et al. Aztreonam vs. cefotaxime in the treatment of gram-negative spontaneous peritonitis in cirrhotic patients. Hepatology 1991;14(1):91-8.
   Ref ID: 564
   Abstract: Aztreonam and cefotaxime were compared in 44 cirrhotic patients who had 52 episodes of gram-negative spontaneous peritonitis. Patients were randomized into two therapeutic groups of similar characteristics. Group A (28 episodes) received 0.5 gm of aztreonam every 8 hr, and group B (24 episodes) received 1 gm of cefotaxime every 6 hr, for a planned 14-day period. Peak and trough serum and ascitic fluid levels of both antibiotics were several times higher than the minimum inhibitory concentrations of causative microorganisms. Eleven patients (21%) died within the first 48 hr after beginning therapy, which included seven in the aztreonam group and four in the cefotaxime group. In the remaining patients, signs and symptoms of infection were promptly controlled, and ascitic fluid cultures became negative after 48 hr in all cases, except in one patient from the aztreonam group, who was a clinical failure. Two patients from the aztreonam group and one from the cefotaxime group relapsed after treatment. The overall mortality rate was 50%, which was lower than classically reported: 12 patients (43%) died in the aztreonam group, and 14 (58%) died in the cefotaxime group (p = 0.265, NS). Hepatorenal syndrome and digestive tract hemorrhage were the most frequent causes of death occurring after the first 48 hr of treatment. Streptococcal superinfections developed in three patients (14.2%) in the aztreonam group. We conclude that both antibiotics at the low doses used in this study are similarly well tolerated and effective in controlling this infection. Because the use of aztreonam as the initial empirical treatment requires a concomitant antibiotic against gram-positive infections and the possibility of streptococcal superinfections, cefotaxime seems to be a more advantageous therapeutic alternative for this patient population

6. Barth X, Hayoun H, Rat P, Hoen JP, Favre JP, Lombard-Platet R. Comparison of 2 antibiotic combinations used for peritonitis. Cefotaxime-clindamycin versus cefotaxime-metronidazole. Presse Med 1991;20(2):57-60.
   Ref ID: 574
   Abstract: In this prospective and randomized trial involving 38 patients operated upon for generalized or localized peritonitis, 2 combinations of antibiotics were assessed on the

basis of 5 predetermined criteria: number of successes and failures, duration of fever, leucocytosis, antibiotic therapy and stay in hospital. No significant difference was observed between the two therapeutic groups. The spectrum of sensitive organisms and the effectiveness of treatment could be considered satisfactory whatever the combination utilized. The 86.8 percent clinical success rate suggests that the cefotaxime-clindamycin combination should be used more frequently than it is now

7. Basoli A, Chirletti P, Cirino E, D'Ovidio NG, Doglietto GB, Giglio D, et al. A prospective, double-blind, multicenter, randomized trial comparing ertapenem 3 vs >or=5 days in community-acquired intraabdominal infection. J Gastrointest Surg 2008;12(3):592-600.
   Ref ID: 359
   Abstract: Severe secondary peritonitis is diagnosed in only 20-30% of all patients, but studies to date have persisted in using a standard fixed duration of antibiotic therapy. This prospective, double-blind, multicenter, randomized clinical study compared the clinical and bacteriological efficacy and tolerability of ertapenem (1 g/day) 3 days (group I) vs >or=5 days (group II) in 111 patients with localized peritonitis (appendicitis vs non-appendicitis) of mild to moderate severity, requiring surgical intervention. In evaluable patients, the clinical response as primary efficacy outcome were assessed at the test-of-cure 2 and 4 weeks after discontinuation of antibacterial therapy. Ninety patients were evaluable. In groups I and II, 92.9 and 89.6% of patients were cured, respectively; 95.3% in group I and 93.7% in group II showed eradication. These differences were not statistically significant. The most frequent bacteria recovered were Escherichia coli and Bacteroides fragilis. A wound infection developed in seven patients (7.7%) and an intraabdominal infection in one patient (1.1%). There was a low frequency of drug-related clinical or laboratory adverse effects in both groups. Our study demonstrated that, in patients with localized community-acquired intraabdominal infection, a 3-day course of ertapenem had the same clinical and bacteriological efficacy as a standard duration

8. Bennett-Jones DN, Russell GI, Barrett A. A comparison between oral ciprofloxacin and intra-peritoneal vancomycin and gentamicin in the treatment of CAPD peritonitis. J Antimicrob Chemother 1990;26:Suppl-6.
   Ref ID: 581
   Abstract: Fifty-one patients were included in a prospective, randomized comparison of oral ciprofloxacin and intraperitoneal vancomycin/gentamicin in the treatment of CAPD peritonitis. Staphylococcal species accounted for 40% of the isolates with an equal incidence of Staphylococcus aureus and coagulase negative staphylococci. Although, overall, there was no significant difference between the regimens in outcome, ciprofloxacin was significantly less effective when peritonitis was due to coagulase negative staphylococci

9. Bennett JD, Wass V, Mawson P. A comparison of intraperitoneal and intravenous/oral antibiotics in CAPD peritonitis. Peritoneal Dial Bull 1987;7(1):31-3.
   Ref ID: 1112
   Abstract: Eighty patients with CAPD peritonitis were randomised to receive either intraperitoneal (IP) vancomycin and tobramycin, or intravenous (IV) vancomycin and tobramy-

cin followed by oral antibiotics, depending on the results of culture and sensitivity. Five patients were withdrawn, and, of the remaining patients, 39 were in the IP group and 36 in the IV group. When all episodes of bacterial peritonitis are considered, the treatment failure rate was higher in the IV group (34.1%), than in the IP group (10.3%) ($p < 0.02$). This was also the case when gram-positive organisms resistant to tobramycin were considered separately ($p < 0.05$), but not for vancomycin-resistant organisms. We conclude that vancomycin should be administered by the intraperitoneal route: the case for intraperitoneal tobramycin is 'not proven'.

10. Birolini D, Moraes MF, de Souza OS. Aztreonam plus clindamycin vs. tobramycin plus clindamycin for the treatment of intraabdominal infections. Rev Infect Dis 1985;7:Suppl-8.
    Ref ID: 642
    Abstract: Sixty-six patients with acute intraabdominal infections due to gram-negative aerobic organisms were treated with aztreonam plus clindamycin or with tobramycin plus clindamycin in a multicenter, comparative, randomized study. The patients had undergone a variety of surgical procedures; most of them had peritonitis. Thirty-three of the 36 patients in the aztreonam group and 26 of the 30 patients in the tobramycin group had satisfactory clinical responses. Only one gram-negative aerobic pathogen, a strain of Pseudomonas aeruginosa, persisted after treatment; the patient involved was in the tobramycin group. The incidences of adverse reactions, superinfections, and abnormal laboratory values were low in each treatment group. The difference between the efficacies of the two regimens was not statistically significant. This study suggests that aztreonam may be a useful alternative to the aminoglycosides in the treatment of gram-negative intraabdominal infections

11. Biron S, Brochu G, Beland L, Bourque RA, Marceau P, Piche P, et al. Short-term antibiotherapy for peritonitis: prospective, randomized trial comparing cefotaxime-metronidazole and clindamycin-tobramycin. J Antimicrob Chemother 1984;14:Suppl-6.
    Ref ID: 656
    Abstract: The combination of cefotaxime and metronidazole has been suggested for the treatment of peritonitis. We compared their effectiveness with that of tobramycin and clindamycin. Since antibiotics have most of their beneficial effect within a few days a four day course was used and a randomized trial was undertaken. The effectiveness of the 4-day course was 86% and no difference was seen between the two groups of the study

12. Boeschoten EW, Rietra PJ, Krediet RT, Visser MJ, Arisz L. CAPD peritonitis: a prospective randomized trial of oral versus intraperitoneal treatment with cephradine. J Antimicrob Chemother 1985;16(6):789-97.
    Ref ID: 640
    Abstract: In a prospective randomized clinical trial 84 peritonitis episodes were treated with cephradine, either orally or intraperitoneally. No difference in treatment outcome between both groups could be demonstrated. In episodes caused by susceptible microorganisms a good response was seen in 82% in the oral and 82% in the intraperitoneal

groups. These clinical findings were supported by the demonstration of adequate cephradine concentrations in serum and dialysate after oral as well as after intraperitoneal administration. Altogether cephradine was given orally or intraperitoneally in 88 episodes of peritonitis as drug of first choice. In 52 a complete cure was obtained, in 36 another antibiotic was subsequently needed as soon as bacterial susceptibility was known. No patient deteriorated appreciably during the delay between the start of cephradine and the switch to another antibiotic. Of the 36 episodes 14, caused by methicillin-resistant Staphylococcus epidermidis, responded well initially to cephradine but relapsed later. Change to another antibiotic effected a complete recovery in all 14 cases. Of the remaining 22 episodes, 14 were cured by the other antibiotic, in eight the catheter had to be removed. Aminoglycosides could be avoided except for ten of the episodes. During peritonitis CAPD was continued, in 71% of the cases on an outpatient basis. Mortality due to peritonitis was absent. We conclude that oral cephradine can be used as drug of first choice in the initial treatment of CAPD peritonitis, because a good initial response was obtained in 66 (52 + 14) i.e. 75% of 88 episodes. However, complete cure by cephradine alone was achieved in only 60%.(ABSTRACT TRUNCATED AT 250 WORDS)

13. Bowley JA, Pickering SJ, Scantlebury AJ, Ackrill P, Jones DM. Intraperitoneal teicoplanin in the treatment of peritonitis associated with continuous ambulatory peritoneal dialysis. J Antimicrob Chemother 1988;21:Suppl-9.
    Ref ID: 618
    Abstract: The efficacy of teicoplanin in the treatment of peritonitis in patients undergoing continuous ambulatory peritoneal dialysis (CAPD) was evaluated in a randomised comparison with vancomycin. The dosage regimen used was 50 mg of vancomycin or teicoplanin per 2 1 bag of dialysate for 48 h followed by 25 mg per bag for a further five days. Twelve episodes of peritonitis were studied. There was no significant difference in the bacteriological or clinical cure rates of either antibiotic

14. Boyce NW, Wood C, Thomson NM, Kerr P, Atkins RC. Intraperitoneal (IP) vancomycin therapy for CAPD peritonitis--a prospective, randomized comparison of intermittent v continuous therapy. Am J Kidney Dis 1988;12(4):304-6.
    Ref ID: 611
    Abstract: The use of intraperitoneal (IP) vancomycin as initial, single agent therapy for gram positive and "no organism" continuous ambulatory peritoneal dialysis (CAPD) peritonitis is described, comparing continuous and intermittent administration schedules. "Continuous" therapy consisted of an IP 1-g loading dose of vancomycin followed by 30 mg/L dialysate effluent. "Intermittent" therapy consisted of 2 IP doses of 30 mg vancomycin/kg body weight--the initial dose delivered at diagnosis and the second dose 1 week later. All patients presenting with peritonitis (n = 90) were randomized to receive either continuous or intermittent vancomycin therapy. Patients in whom gram negative organisms and fungi were identified by microscopy and culture were transferred to therapy with a more appropriate antibiotic (n = 39). In the remainder (n = 51), CAPD peritonitis was treated solely with vancomycin (continuous, n = 21; intermittent, n = 30). Clinical resolution was seen in all patients, requiring a mean of 3.2 days for macroscopic clearing of dialysate effluent. Recurrence of peritonitis within 1 month of cessation of therapy

was unusual and did not vary between treatment protocols (4/21 v 3/30; P = NS). There were no differences in observed side effects. Thus, IP vancomycin proved to be a useful single agent therapy for gram positive and no organism CAPD peritonitis. Therapy with two IP doses was effective and as safe as continuous IP vancomycin therapy, and therefore should replace other vancomycin administration schedules in the treatment of CAPD peritonitis

15. Cahn P, Smayevsky J, Bianchini H, Benchetrit G, Kauffman S. Clinical and bacteriological evaluation of ceftizoxime twice daily in purulent peritonitis: Prospective, randomised, comparative trial vs. gentamicin + metronidazole + ampicillin. J Drug Dev Suppl 1993;6(2):31-3.
Ref ID: 999
Abstract: Copyright © 2011 Elsevier B. V., Amsterdam. All Rights Reserved

16. Cakmakci M, Stern A, Schilling J, Christen D, Roggo A, Geroulanos S. Randomized comparative trial of imipenem/cilastatin versus aminoglycoside plus amoxycillin plus clindamycin in the treatment of severe intra- and post-operative infections. Drugs Exp Clin Res 1993;19(5):223-7.
Ref ID: 530
Abstract: In a prospective, randomized, controlled study, clinical and bacteriological efficacy of imipenem/cilastatin (I/C) was compared with a standard combination of aminoglycoside + amoxycillin + clindamycin (C) in patients (pts) with severe intra- and post-operative infections. A total of 84 pts were randomly separated into two groups of 42 pts. Diagnoses were pneumonia n = 21 (14 in I/C group and 7 in C), peritonitis n = 45 (16 in I/C group and 29 in C), septicaemia n = 12 (9 in I/C group and 3 in C), and 7 other infections (3 in I/C group and 4 in C). Doses used were imipenem/cilastatin 1 g q 8 h and amoxycillin 2 g q 8 h plus clindamycin 0.6 g q 6 h, plus netilmicin according to serum concentrations. Success rates were 85.4% (n = 35: 34 cured and one improved) in the I/C group and 83.3% (n = 35: 30 cured and five improved) in the C group. Six pts in group I/C and 7 in group C failed to respond to treatment. One patient in the I/C group was not assessable. 62% of the bacterial isolates were eradicated in the I/C group and 55% in group C. 7% were suppressed in I/C and 5% in C. It is concluded that imipenem/cilastatin is an effective and well-tolerated alternative to antibiotic combinations in severe intra- and post-operative infections. It offers the advantages of fewer drug doses and less renunciation of serum drug concentration monitoring

17. CARI CARI Guidelines. Treatment of PD associated peritonitis in adults. 2011. (International Guidelines Library.)
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18. Chan MK, Cheng IK, Ng WS. A randomized prospective trial of three different regimens of treatment of peritonitis in patients on continuous ambulatory peritoneal dialysis. Am J Kidney Dis 1990;15(2):155-9.
Ref ID: 596
Abstract: A randomized prospective study was undertaken in patients on continuous

ambulatory peritoneal dialysis (CAPD) to evaluate the efficacy of three different antibiotic regimens for the treatment of peritonitis. There were 39 episodes in each treatment group. Patients were treated with intraperitoneal (IP) cephalothin (250 mg/L) and tobramycin (8 mg/L) in group 1, oral ofloxacin (400 mg loading followed by 300 mg daily) in group 2, and a combination of ofloxacin (400 mg followed by 300 mg daily) and rifampicin (300 mg daily). Treatment duration was 10 days. The average culture-positive rate was 75%. The overall cure rate was 80.6% with IP antibiotics, 78.4% with oral ofloxacin, and 81.1% with ofloxacin and rifampicin. After the exclusion of tunnel infections and episodes of peritonitis due to Pseudomonas and resistant organisms, the corresponding figures were 100%, 90.6%, and 93.7%, respectively. Side effects were minimal with IP treatment and with oral ofloxacin, but severe nausea and vomiting occurred in some cases with the combination of ofloxacin and rifampicin. It was concluded that oral ofloxacin is an acceptable first-line therapy for peritonitis in CAPD patients

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    Ref ID: 880
    Abstract: In an attempt to determine the optimal duration of therapy in spontaneous bacterial peritonitis, 50 patients who met the strict criteria for spontaneous bacterial peritonitis (SBP) or culture negative neutrocytic ascites, were randomized into two equal groups to receive single 3rd generation cephalosporin antibiotic Cefoperazone 2g I/V every 12 hours for short vs long course treatment of 5 and 10 days respectively. Empiric therapy was started before the results of ascitic fluid culture were available. Infection related mortality (4%), hospitalization mortality (41.2%), bacteriologic cure (86%) and recurrence of ascitic fluid infection (12%) were not significantly different among both the treatment groups. Recurrence rates were comparable to the values reported in literature. However, the cost of antibiotic treatment was significantly lower in the first group of short course treatment and it was found as efficacious as long course therapy in spontaneous bacterial peritonitis. Number of References 17.

20. Chavez-Tapia NC, Soares-Weiser K, Brezis M, Leibovici L. Antibiotics for spontaneous bacterial peritonitis in cirrhotic patients. Cochrane Database of Systematic Reviews 2009;(1)
    Ref ID: 29
    Abstract: Background: Spontaneous bacterial peritonitis is a complication of cirrhotic ascites that occurs in the absence of any intra-abdominal, surgically treatable source of infection. Antibiotic therapy is indicated and should be initiated as soon as possible to avoid severe complications that may lead to death. It has been proposed that empirical treatment should cover gram-negative enteric bacteria and gram-positive cocci, responsible for up to 90% of spontaneous bacterial peritonitis cases. Objectives: This review aims to evaluate the beneficial and harmful effects of different types and modes of antibiotic therapy in the treatment of spontaneous bacterial peritonitis in cirrhotic patients. Search strategy: We performed electronic searches in The Cochrane Hepato-Biliary

Group Controlled Trials Register (July 2008), the Cochrane Central Register of Controlled Trials (CENTRAL) in The Cochrane Library (Issue 3, 2008), MEDLINE (1950 to July 2008), EMBASE (1980 to July 2008), and Science Citation Index EXPANDED (1945 to July 2008). In addition, we handsearched the references of all identified studies and contacted the first author of each included trial. Selection criteria: Randomised studies comparing different types of antibiotics for spontaneous bacterial peritonitis in cirrhotic patients. Data collection and analysis: Data were independently extracted from the trials by at least two authors. Peto odds ratios or average differences, with their 95% confidence intervals, were estimated. Main results: This systematic review attempted to summarise evidence from randomised clinical trials on the treatment of spontaneous bacterial peritonitis. Thirteen studies were included; each one of them compared different antibiotics in their experimental and control groups. No meta-analyses could be performed, though data on the main outcomes were collected and analysed separately for each included trial. Currently, the evidence showing that lower dosage or short-term treatment with third generation cephalosporins is as effective as higher dosage or long-term treatment is weak. Oral quinolones could be considered an option for those with less severe manifestations of the disease. Authors' conclusions: This review provides no clear evidence for the treatment of cirrhotic patients with spontaneous bacterial peritonitis. In practice, third generation cephalosporins have already been established as the standard treatment of spontaneous bacterial peritonitis, and it is clear, that empirical antibiotic therapy should be provided in any case. However, until large, well-conducted trials provide more information, practice will remain based on impression, not evidence.

21. Chen TA, Lo GH, Lai KH, Lin WJ. Single daily amikacin versus cefotaxime in the short-course treatment of spontaneous bacterial peritonitis in cirrhotics. World Journal of Gastroenterology 2005;11(43):6823-7.
    Ref ID: 388
    Abstract: AIM: To compare the efficacy and safety of single daily amikacin vs. cefotaxime in the 5-d treatment of spontaneous bacterial peritonitis (SBP). METHODS: Thirty-seven cirrhotic patients with SBP, 19 in group A and 18 in group B, were studied. Group A received 1 g of cefotaxime every 6 h, and group B received 500 mg of amikacin qd. Both antibiotics were administered up to 5 d and the responses were compared. RESULTS: Infection was cured in 15 of 19 patients (78.9%) treated with cefotaxime and in 11 of 18 (61.1%) treated with amikacin. Four patients of the Cefotaxime group (21.1%) and five patients of the Amikacin group (27.8%) died. Two in each group (10.5% vs 11.1%) had renal impairment during study period. One in each group (5.3% vs 5.6%) may be considered to suffer from nephrotoxicity due to increased urinary beta(2)-microglobulin concentration. CONCLUSION: In this study, single daily doses of amikacin in the treatment of SBP in cirrhotics were not associated with an increased incidence of renal impairment or nephrotoxicity. However, a 5-d regimen of amikacin is less effective than a 5-d regimen of cefotaxime in the SBP treatment

22. Chen XF, Chen XP. The clinical treatment experience of spontaneous bacterial peritonitis using piperacillin/tazobactam. Chinese Journal of Nosocomiology 2003;13(1):64-6.
Ref ID: 838

23. Cheng IK, Chan CY, Wong WT. A randomised prospective comparison of oral ofloxacin and intraperitoneal vancomycin plus aztreonam in the treatment of bacterial peritonitis complicating continuous ambulatory peritoneal dialysis (CAPD). Perit Dial Int 1991;11(1):27-30.
Ref ID: 569
Abstract: Forty six patients who developed 48 episodes of peritonitis while on CAPD were randomised to receive either oral ofloxacin or intraperitoneal (i.p.) vancomycin/aztreonam. Three patients were excluded from analysis: 2 were transferred to other hospitals and 1 was later found to have candida peritonitis. Of the remainder, 22 episodes were treated with oral ofloxacin and 23 with i.p. vancomycin/aztreonam. The primary cure rate in the oral ofloxacin and i.p. vancomycin/aztreonam group was 77.3% and 87.5% respectively. There were 3 primary failures and 2 relapses in the former and 1 failure and 2 relapses in the latter group. Two of the 4 primary failures were peritonitis episodes secondary to infection with pseudomonas species. The total number of days of hospital stay was 48 and 58 respectively in the two groups. Analysis of the cost of treatment revealed that i.p. vancomycin/aztreonam was 30 times more expensive than oral ofloxacin. Despite a slightly higher cure rate with i.p. vancomycin/aztreonam, oral ofloxacin is a more cost-effective primary treatment of bacterial peritonitis in patients on CAPD especially in countries with a limited health budget

24. Cheng IK, Fang GX, Chau PY, Chan TM, Tong KL, Wong AK, et al. A randomized prospective comparison of oral levofloxacin plus intraperitoneal (IP) vancomycin and IP netromycin plus IP vancomycin as primary treatment of peritonitis complicating CAPD. Perit Dial Int 1998;18(4):371-5.
Ref ID: 469
Abstract: OBJECTIVE: To compare the therapeutic efficacy of daily oral levofloxacin plus intermittent intraperitoneal (IP) vancomycin (group 1) versus daily IP netromycin and intermittent IP vancomycin (group 2) in the primary treatment of peritonitis complicating continuous ambulatory peritoneal dialysis (CAPD). DESIGN: A randomized multicenter prospective open-label comparative clinical study. SETTING: University and Hospital Authority hospitals in Hong Kong. PATIENTS: All CAPD patients who developed bacterial or culture-negative peritonitis beyond 28 days of a previous episode and without evidence of septicemia, associated tunnel infection, or known sensitivity to trial medications were accepted into the clinical trial. RESULTS: A total of 101 patients entered the trial. The primary cure rate was 74.5% for group 1 and 73.6% for group 2. Baseline culture results appeared to influence the clinical outcome: the primary cure rate for culture-negative, gram-positive, and gram-negative episodes was 83.3%, 78.6%, and 42.9% for group 1 and 69.1%, 76.9%, and 71.3% for group 2, respectively. The primary cure rate also varied considerably among individual centers and was particularly noticeable in group 1. In the latter group, it correlated closely with in vitro levofloxacin resistance which in turn correlated closely with previous exposure to fluoroquinolones. CONCLU-

SION: Oral levofloxacin in combination with intermittent IP vancomycin has comparable efficacy to IP netromycin combined with intermittent IP vancomycin as primary treatment in CAPD peritonitis, but is simpler and more cost-effective to administer. It may be recommended as primary therapy in centers with relatively low exposure and, therefore, low background resistance to fluoroquinolones

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    Ref ID: 921
    Abstract: Oral ofloxacin has been successfully used in our centres for the primary treatment of peritonitis complicating continous ambulatory peritoneal dialysis (CAPD). In view of the progressive rise in the resistance rate to ofloxacin among peritoneal bacterial isolates, a study was conducted to determine if oral ofloxacin remains a viable first line treatment for CAPD peritonitis in our centres and if the result can be improved by changing from an oral to an intraperitoneal (i.p.) route. In patients on three 2 L daily CAPD exchanges, ofloxacin given at the i.p. dosage of 200 mg loading followed by 25 mg/L of peritoneal dialysate achieved overnight trough peritoneal levels which are at least four times the minimal 90% inhibitory concentration (MIC90) of most bacterial pathogens without significant accumulation in the systemic circulation. This i.p. dosage was therefore chosen for the clinical study and the result was compared to that using ofloxacin given in the oral dosage of 400 mg 1oading followed by 300 mg once daily as maintenance. Of all the recruited episodes, 35 were eligible for analysis. The overall primary cure rate including primary failures and relapses was 55.6% (10/18) in the oral treatment group and 70.6% (12/17) in the i.p. treatment group. The corresponding figures for gram positive bacterial (g +) infections were 36.4% and 50%, for gram negative bacterial (g-) infections were 66.7 and 80% and for culture negative infections were 75 and 80%. In culture positive cases, all treatment failures were due to resistant infections which were observed in 42.3% of all bacterial isolates, 47.1% of g+ isolates and 33.3% of g- isolates. Due to the high background level of bacterial resistance among our CAPD population, ofloxacin monotherapy given either by the oral or the i.p. route can no longer be recommended for the primary treatment of CAPD peritonitis.

26. Collier J, Colhoun EM, Hill PL. A multicentre comparison of clindamycin and metronidazole in the treatment of anaerobic infections. Scandinavian Journal of Infectious Diseases Supplement 1981;26:96-100.
    Ref ID: 675
    Abstract: One hundred and seventy patients with intra-abdominal infection with non-sporing anaerobes were prospectively studied in an international multicentre study. Patients were randomly allocated to treatment with clindamycin or metronidazole, for a minimum of 48 h to a maximum of 7 days. Other antimicrobial therapy was permitted if indicated by in vitro susceptibility testing. The commonest infections were peritonitis, intra-abdominal abscesses and appendicitis (72 cases), colorectal carcinoma (23 cases), intestinal perforation (16 cases) and diverticulitis (13 cases). Thirty patients received no

other antimicrobial chemotherapy and in a further 94 patients, an aminoglycoside was given in addition to the study drugs. In 38 patients the infection required no surgical intervention. Appendicectomy was commonly performed and surgical drainage of pus was required in 14 patients. These variables were evenly distributed between the treatment groups. Both clindamycin and metronidazole were found to be effective therapy for anaerobic infections and were well tolerated. Of the 9 deaths in the study, 7 were in the clindamycin group, and 2 in the metronidazole group. The study protocol allowed patients who were responding poorly to treatment to be crossed over to the alternative therapy. This procedure was followed in 6 patients, 5 of whom were originally receiving clindamycin. It is concluded that metronidazole is as effective for anaerobic infections as clindamycin

27. Cometta A, Baumgartner JD, Lew D, Zimmerli W, Pittet D, Chopart P, et al. Prospective randomized comparison of imipenem monotherapy with imipenem plus netilmicin for treatment of severe infections in nonneutropenic patients. Antimicrob Agents Chemother 1994;38(6):1309-13.
    Ref ID: 527
    Abstract: Nosocomial pneumonia and sepsis, as well as severe diffuse peritonitis, must be treated early in order to prevent complications such as septic shock and organ dysfunctions. With the availability of new broad-spectrum and highly bactericidal antibiotics, the need of combining beta-lactams with aminoglycosides for the treatment of severe infections should be reassessed. A prospective randomized controlled study was performed to compare imipenem monotherapy with a combination of imipenem plus netilmicin in the empiric treatment of nosocomial pneumonia, nosocomial sepsis, and severe diffuse peritonitis. A total of 313 patients were enrolled, and 280 were assessable. The antibiotic treatment was successful in 113 of 142 patients (80%) given the monotherapy and in 119 of 138 patients (86%) given the combination (P = 0.19). The failure rates for the most important type of infection, i.e., pneumonia, were similar in the two groups, as well as the number of superinfections. While creatinine increase was associated with factors not related to antibiotic therapy for all eight patients of the monotherapy group, no factor other than the antibiotics could be found for 6 of the 14 cases of nephrotoxicity observed in the combination group (P = 0.014). Finally, the emergence of Pseudomonas aeruginosa resistant to imipenem occurred in 8 monotherapy patients and in 13 combination therapy patients. In conclusion, imipenem monotherapy appeared as effective as the combination of imipenem plus netilmicin for the treatment of severe infection. The addition of netilmicin increased nephrotoxicity, and it did not prevent the emergence of P. aeruginosa resistant to imipenem

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    Ref ID: 270
    Abstract: Background. The optimal duration of antibiotic use in penetrating abdominal trauma is incompletely defined. It is generally accepted that short-term antibiotics are appropriate for low-risk wounds. However, with colon injury and significant degree of in-

jury, abdominal trauma index (ATI) more than 25, concern exists that short-term treatment is not adequate. Methods. The study was a prospective double-blind trial of 24-hour treatment (cefoxitin or cefotetan) compared with 5-day treatment in 515 patients. Major abdominal infections (MAI) included abscess, necrotizing fasciitis, and diffuse peritonitis. Results. MAI occurred in 8% of those patients with 1-day therapy and 10% with 5-day therapy. Subgroup analysis of high-risk groups (colon wounds and ATI of more than 25) showed the following MAI rates: colon, 1-day therapy, 14%; 5-day therapy, 15%; ATI of more than 25, 1-day therapy, 17%; 5-day therapy, 30%. Conclusions. Regardless of contamination and degree of injury, 24-hour antibiotic therapy is satisfactory for all penetrating abdominal trauma

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    Ref ID: 1142
    Abstract: The clinical efficacy and safety of sulbactam/ampicillin versus metronidazole/gentamicin were compared in 39 patients with severe pelvic infections. 30 patients had severe acute pelvic inflammatory disease with peritonitis, 3 tubo-ovarian abscesses, 4 endomyometritis, and 2 posthysterectomy pelvic cellulitis. Aerobic and anaerobic cultures from the sites of infection yielded 259 micro-organisms from 38 patients; an average of 6.8 bacteria per infection (3.9 anaerobes and 2.9 aerobes). The most frequent isolates were Bacteroides spp. (21), B. bivius (13), B. disiens (8), Fusobacterium spp. (9), Peptostreptococcus anaerobius (15), P. asaccharolyticus (8), anaerobic Gram-positive cocci (17), Gardnerella vaginalis (24), Neisseria gonorrhoeae (14), alpha-haemolytic streptococci (6) and Escherichia coli (3). Clinical cure was noted in 19 of 20 patients treated with sulbactam/ampicillin and 16 of 19 treated with metronidazole/gentamicin. The sulbactam/ampicillin failure was a patient with pelvic inflammatory disease with a positive Chlamydia trachomatis culture who required antichlamydial therapy. The metronidazole/gentamicin failures included a patient with a tubo-ovarian abscess requiring surgical drainage and 2 patients with pelvic inflammatory disease requiring antichlamydial treatment. No adverse haematological, renal, or hepatic effects were noted with either regimen

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    Ref ID: 609
    Abstract: The comparative efficacy of imipenem-cilastatin versus clindamycin and gentamicin in the treatment of polymicrobial infections was evaluated. Eleven patients completed treatment with the former and nine with the latter. Conditions treated included infected extremity ulcers, peritonitis, perirectal abscess, soft-tissue abscess, abdominal abscess, and acute diverticulitis. Similar rates of bacteriologic and clinical cure or improvement were achieved with the two treatments. Superinfection occurred in two patients who received imipenem-cilastatin and one who received clindamycin and gentamicin. No significant difference in adverse effects was noted. Imipenem-cilastatin ap-

pears to be an effective antibiotic in treating polymicrobial infections; however, a much larger patient population would be required to detect a significant difference in the efficacy rates or frequency of adverse effects when comparing the two regimens

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Ref ID: 437
Abstract: OBJECTIVE: The initial treatment of peritonitis has evolved from single-agent to combination regimens. The initial response rates improved with these newer regimens but relapsing peritonitis continues to occur. For biofilm-embedded or intracellularly sequestrated bacteria, a combination of intracellularly- and biofilm-active agents such as ciprofloxacin and rifampicin might be beneficial. Many Dutch centers continue to use cephradine as initial treatment, claiming clinically adequate responses with this regimen. We compared the impact of these two regimens on outcome in patients who developed a new episode of peritonitis. DESIGN: Prospective randomized open trial. SETTING: Multicenter study including 14 Dutch dialysis units. PATIENTS AND INTERVENTIONS: From October 1996 to October 1999, 367 patients from 14 centers were randomized to be treated with ciprofloxacin + rifampicin (CR; each 50 mg/L) or cephradine (C; 250 mg/L) in case of peritonitis. Of these 367 patients, 98 developed peritonitis, 44 of whom were treated with CR and 54 with C. MAIN OUTCOME MEASURES: Clinical response, divided into early (during the 2 weeks of therapy) and late (including the following 4 weeks) response. Success was defined as disappearance of all signs and symptoms by days 4-6, through day 42. Bacteriological response was either success (eradication) or failure (persistence, superinfection, or eradication with relapse/reinfection). RESULTS: The groups were comparable for age, sex, duration of continuous ambulatory/automated peritoneal dialysis, and occurrence of diabetes. Bacteriological cultures in both groups revealed predominantly gram-positive micro-organisms. Initial and late clinical successes were obtained in 27/54 and 20/54 episodes (50% and 37%) in the C group, and 33/44 and 28/44 episodes (75% and 63.6%) in the CR group ($p = 0.021$ and $p = 0.019$). Bacteriological success occurred in 29.6% in the C group, and in 59.1% in the CR group ($p= 0.026$), with failure in 46.3% and 18.2%, respectively. Peritonitis episodes were bacteriologically not evaluable in 24.1% of episodes in the C group and 22.7% of episodes in the CR group, due mostly to no growth in the initial culture. CONCLUSION: The CIPPER Trial showed ciprofloxacin + rifampicin to be superior to cephradine as empiric treatment of peritonitis

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Ref ID: 613
Abstract: The aim of this prospective, randomized, open study was to survey the frequency course and to evaluate the therapy of peritonitis induced by staphylococci in patients on continuous ambulatory peritoneal dialysis (CAPD). From June 1983 to November 1986, 20 patients (9 men, 11 women) aged from 25 to 73 were treated. During 258

months of the CAPD treatment they had 54 episodes of peritonitis. Staphylococcus saprophyticus was the most frequent offender of peritonitis, isolated from peritoneal effluent in 44% of the cases, Staphylococcus epidermidis was isolated in 7% of the cases. Staphylococcus aureus was isolated in 5% of the cases and caused a more severe form of peritonitis. The combination of gentamicin and methicillin was used in 14 cases, in 2 cases this treatment was unsuccessful. A combination of gentamicin and cloxacillin was used in 5 cases and a combination of clindamycin and mezlocillin in 12 cases of peritonitis, giving good results in all cases. The last combination seemed to be the most effective in the treatment of staphylococcus induced peritonitis

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Ref ID: 453
Abstract: In a randomized trial conducted in 35 centers, we compared the clinical efficacy and safety of piperacillin plus tazobactam (TAZ) alone (monotherapy [MT]) versus those of TAZ combined with amikacin (AMK) (combined therapy [CT]) for the treatment of severe generalized peritonitis (SGP). Primary analysis consisted of blind assessment by an independent committee of the failure rate 30 days after the end of treatment in the modified intent-to-treat (ITT) analysis (mITT) population. Of the 241 patients with suspected SGP randomized into the study, 227 were eligible for ITT analysis, including 204 (99 in the MT group and 105 in the CT group) with confirmed SGP (mITT population). A total of 159 patients were eligible for per-protocol (PP) analysis. The clinical failure rates were equivalent in the mITT and PP populations (MT versus CT): 56 versus 52%, (odds ratio [OR] 0.87, 90% confidence interval [CI] = 0. 6 to 1.27) for mITT and 49 versus 49% (OR = 1.03, 90% CI = 0.67 to 1. 59) for PP analysis. Mortality rates (ITT population, 19%; PP population, 21%) and overall adverse event rates (ITT population, 55%; PP population, 54%) were also similar. Six patients (three in MT group and three in the CT group) developed acute renal failure. In conclusion, the addition of AMK to TAZ does not seem to be necessary for the treatment of SGP, even after adjustment for the simplified acute physiology score (SAPS II) and type of SGP

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35. Everett ED. Diagnosis, prevention and treatment of peritonitis. Peritoneal Dialysis Bulletin 1984;4(3 SUPPL.):139-42.
Ref ID: 297
Abstract: Recent reports related to the diagnosis, prevention and treatment of peritonitis in patients on chronic peritoneal dialysis are reviewed. The reports deal with modifications of earlier drug therapies, the use of ultraviolet light, the use of the inline filter, and the biocompatibility of antibiotics in dialysis solutions

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    Ref ID: 568
    Abstract: OBJECTIVE: To determine if intraperitoneal administration of vancomycin (a slowly absorbed antibiotic) improves the management of dialysis-associated peritonitis over that obtained by using cefazolin, an equally potent, rapidly absorbed antibiotic. SETTING: A university operated teaching hospital, with patient treatment initiated at home. PATIENTS: One hundred thirty-one patients trained to perform peritoneal dialysis (CAPD and CCPD) and followed at the University of Iowa Hospitals and Clinics Home Dialysis Treatment Center. DESIGN: Patients were prospectively allocated into groups adding either vancomycin 25 mgm/L, or cefazolin 50 mgm/L to their dialysate when signs or symptoms of peritonitis developed. Treatment results were analysed using chi-square testing. FINDINGS: Compared to cefazolin, initial peritonitis therapy with vancomycin improved the peritonitis resolution rate [67% vs 81%; p = 0.008], reduced the incidence of hospital admissions [68% vs 48%; p = 0.001], and decreased the risk of superinfection [4% vs 0%; p = 0.039]. CONCLUSION: Vancomycin appeared to be superior to cefazolin in the treatment of peritoneal dialysis associated peritonitis

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    Ref ID: 695
    Abstract: From a controlled therapeutic trial extending for more than 2 yr and involving 69 patients with appendicitis and peritonitis a clear-cut statistically significant result emerged. There was a major reduction in the incidence of intraperitoneal abscesses using cephaloridine by the intraperitoneal as opposed to the systemic route. After randomized selection into treatment and control groups, cephaloridine, 25 mg/kg was given by injection every 6 hr for 48 hr to the treatment group by i.p. installation and to the control group by systemic injection. Both groups received initial intraoperative peritoneal lavage with normal saline and also continued systemic injections of cephaloridine on postoperative days 3, 4, and 5. Only one out of 36 patients in the treatment group developed a residual intraperitoneal abscess, as opposed to six abscesses developing in 33 patients in the control group. Technical problems and complications of the method were trivial and have not prevented us from continuing and extending the applications of the method

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    Ref ID: 668
    Abstract: A randomised prospective clinico-laboratory evaluation of the efficacy of ornidazole versus clindamycin in anaerobic infections was performed in 140 patients; 67 were given ornidazole and 73 received clindamycin. Patients were mainly suffering from peritonitis, pelvic cellulitis, endometritis, soft tissue infections and abdominal abscesses, which were distributed rather equally in both groups. Ornidazole was administered at a dose of 500 mg every 12 h i.v. or/and orally, and clindamycin 600 mg every 8 h i.v. for 7-60 days. In pus cultures, Escherichia coli and Bacteroides fragilis were the main isolates.

The coexistence of aerobes necessitated the addition of an aminoglycoside in 111 patients, while six times chloramphenicol had proved ineffective against anaerobes. Between the two groups no statistically significant difference was found in the excellent response rate, although the overall cure rate was superior in the ornidazole group (80.6 vs. 68.5%), with a prompt response within less than 48 h in the case of ornidazole. Side effects necessitating discontinuation of chemotherapy included severe nausea in 1 patient treated with ornidazole and diarrhea in 8 patients given clindamycin

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Ref ID: 535
Abstract: We compared cefonicid (2 g every 12 h) and ceftriaxone (2 g every 24 h) for their efficacy and safety in treating spontaneous bacterial peritonitis in cirrhotic patients in an open randomized clinical trial (30 patients in each group). Clinical, laboratory, and bacteriologic characteristics were similar in both groups. Ceftriaxone-susceptible strains were isolated on 44 occasions (94%), and cefonicid-susceptible strains were isolated on 43 occasions (91.5%). The antibiotic concentration in ascitic fluid/MIC ratio for ceftriaxone was > 100 throughout the dose interval (24 h), while it was lower for cefonicid (between 1 and 18). A total of 100% of patients treated with ceftriaxone, and 94% of those treated with cefonicid were cured of their infections (P was not significant). Hospitalization mortality was 37% in the cefonicid group and 30% in the ceftriaxone group (P was not significant). The time that elapsed between the initiation of treatment and the patient's death was shorter in the cefonicid group patients (5.3 +/- 3.90 days) than in the ceftriaxone group patients (11.8 +/- 9.15 days) (P < 0.05). None of the patients presented with superinfections, and only two patients treated with cefonicid and three patients treated with ceftriaxone developed colonizations with Enterococcus faecalis or Candida albicans. Ceftriaxone and cefonicid are safe and useful agents for treating cirrhotic spontaneous bacterial peritonitis, although the pharmacokinetic characteristics of ceftriaxone seem to be more advantageous than those of cefonicid

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Ref ID: 487
Abstract: In spite of several recommendations, choosing the initial antibiotic to treat continuous ambulatory peritoneal dialysis (CAPD) peritonitis remains difficult. In our prospective randomized study we attempted to evaluate the efficacy and safety of less toxic combinations of cephalosporins with vancomycin or netilmycin. From November 1993 to September 1996 we treated 52 episodes of peritonitis in 34 patients. Peritonitis was diagnosed according to the valid criteria. Patients were treated for 14 - 28 days with a combination of either cefazolin plus netilmycin or vancomycin plus ceftazidime. The most frequent bacteria causing peritonitis in the two groups were comparable. The efficacy of the cefazolin/netilmycin combination was 91.6% (22/24) without yeasts and 84.0% (21/25) in the vancomycin/ceftazidime combination. There were no statistically significant differences between the two otherwise efficient combinations of antibiotics. No side

effects were observed. We believe that the frequent use of vancomycin could be avoided thus reducing the risks of resistance and ototoxicity

41. Gucek A, Bren AF, Lindic J, Hergouth V, Mlinsek D. Is monotherapy with cefazolin or ofloxacin an adequate treatment for peritonitis in CAPD patients? Adv Perit Dial 1994;10:144-6.
    Ref ID: 520
    Abstract: This prospective randomized study is an evaluation of efficacy of cefazolin and ofloxacin in 23 end-stage renal disease (ESRD) patients treated with continuous ambulatory peritoneal dialysis (CAPD) who experienced 38 episodes of peritonitis (P). Cefazolin was administered intraperitoneally: 1000 mg as loading dose and 250 mg every exchange as maintenance dose for ten days. Ofloxacin was given orally: first 300 mg, followed by ten daily doses of 200 mg. Microbes most frequently isolated from peritoneal effluent were Staphylococci (coagulase-negative in 55.3%, aureus in 7.9%), Acinetobacter (in 5.3%), Klebsiella (in 5.5%), and Micrococcus (in 5.3%). Used as monotherapy, we found the efficacy of both cefazolin and ofloxacin inadequate for treatment of P in CAPD patients (cefazolin 65%, ofloxacin 67%) (NS)

42. Hernandez AGM, Alvarez JGR, Kiyono JK. [Cefepime in the treatment of peritonitis associated with continuous ambulatory dialysis]. Medicina Interna de Mexico 2004;20(3):173-82.
    Ref ID: 813
    Abstract: Background: The necessity to extend the treatment options for continuous ambulatory peritoneal dialysis continues to be a reason of investigation, since it is one of the most frequent complications that determines the peritoneum functional capacity loss, it progressively deteriorates the clinical state of the patient and increases the number of hospitalizations and costs. Before the sprouting of multiresistant microorganisms and the preoccupation of the aminoglycoside's adverse effects on the residual renal function or of ototoxicity, controversy in the election of antibiotics has increased. The administration of cefalosporins as monotherapy has been the option to avoid situations of toxicity by vancomicin or another aminoglycoside. Cefepime belongs to the betalactamic antibiotic class and is considered a fourth generation cefalosporin, which gives stability before betalactamases and increases its activity before gram-negative germs without loosing positive capacity before the gram-positive ones. Objective: To establish if cefepime is an effective option in the management of peritonitis related to continuous ambulatory peritoneal dialysis. Material and methods: Patients with continuous ambulatory peritoneal dialysis were randomly selected. The peritoneal liquid cytochemical positive for peritonitis, the Gram stain cytochemical and the culture for the identification of the found microorganisms were controlled. At the beginning, the training group received cefepime at doses of 500 mg/L and then 125 mg/L in dialysis solution at 1.5% for 10 days with 4 daily changes. The control group obtained cefotaxime at doses of 250 mg/L plus amikacine at 25 mg/L in similar conditions as the ones already described. Cytochemical control was taken at 48 and 96 hours. Results: Recovery rate with cefepime in the study group was of 85% while in the control group was of 80%. It was effective for all the gram-positive germs and with little or no effectiveness for Pseudomonas aeruginosa in

both groups, where Tenckhoff catheter had to be retired before the negative response and the peritonitis evolution. Conclusions: In our results there is no statistical significant difference between both groups. Nevertheless, cefepime is an excellent monotherapy for the treatment of peritonitis by gram-positive germs and some negative ones. There were no data of adverse effects in the training group. When considering the cost-benefit situation, cefepime turned out to be a better option than the cefalosporin-aminoglycosid combination. Cefepime did not demonstrate effectiveness in the found stocks of Pseudomonas aeruginosa.

43. Jaccard C, Troillet N, Harbarth S, Zanetti G, Aymon D, Schneider R, et al. Prospective randomized comparison of imipenem-cilastatin and piperacillin-tazobactam in nosocomial pneumonia or peritonitis. Antimicrob Agents Chemother 1998;42(11):2966-72.
Ref ID: 475
Abstract: Nosocomial pneumonia and acute peritonitis may be caused by a wide array of pathogens, and combination therapy is often recommended. We have previously shown that imipenem-cilastatin monotherapy was as efficacious as the combination of imipenem-cilastatin plus netilmicin in these two settings. The efficacy of imipenem-cilastatin is now compared to that of piperacillin-tazobactam as monotherapy in patients with nosocomial pneumonia or acute peritonitis. Three hundred seventy one patients with nosocomial pneumonia or peritonitis were randomly assigned to receive either imipenem-cilastatin (0.5 g four times a day) or piperacillin-tazobactam (4.5 g three times a day). Three hundred thirteen were assessable (154 with nosocomial pneumonia and 159 with peritonitis). For nosocomial pneumonia, clinical-failure rates in the piperacillin-tazobactam group (13 of 75 [17%]) and in the imipenem-cilastatin group (23 of 79 [29%]) were similar (P = 0.09), as were the numbers of deaths due to infection (6 in the imipenem-cilastatin group [8%], 7 in the piperacillin-tazobactam group [9%]) (P = 0.78). For acute peritonitis, clinical success rates were comparable (piperacillin-tazobactam, 72 of 76 [95%]; imipenem-cilastatin, 77 of 83 [93%]). For infections due to Pseudomonas aeruginosa, 45 patients had nosocomial pneumonia (21 in the piperacillin-tazobactam group and 24 in the imipenem-cilastatin group) and 10 had peritonitis (5 in each group). In the patients with nosocomial pneumonia, clinical failure was less frequent in the piperacillin-tazobactam group (2 of 21 [10%]) than in the imipenem-cilastatin [corrected] group (12 of 24 [50%]) (P = 0.004). Bacterial resistance to allocated regimen was the main cause of clinical failure (1 in the piperacillin-tazobactam group and 12 in the imipenem-cilastatin group). For the patients with peritonitis, no difference in clinical outcome was observed (five of five cured in each group). The overall frequencies of adverse events related to treatment in the two groups were similar (24 in the piperacillin-tazobactam group, 22 in the imipenem-cilastatin group). Diarrhea was significantly more frequent in the piperacillin-tazobactam group (10 of 24) than in the imipenem-cilastatin group (2 of 22). This study suggests that piperacillin-tazobactam monotherapy is at least as effective and safe as imipenem-cilastatin monotherapy in the treatment of nosocomial pneumonia or peritonitis. In P. aeruginosa pneumonia, piperacillin-tazobactam achieved a better clinical efficacy than imipenem-cilastatin, due to reduced development of micro-

biological resistance. Tolerance was comparable, with the exception of diarrhea, which was more frequent with piperacillin-tazobactam

44. Khairullah Q, Provenzano R, Tayeb J, Ahmad A, Balakrishnan R, Morrison L. Comparison of vancomycin versus cefazolin as initial therapy for peritonitis in peritoneal dialysis patients. Perit Dial Int 2002;22(3):339-44.
    Ref ID: 429
    Abstract: The incidence of peritonitis ranges from 1 episode every 24 patient treatment months to 1 episode every 60 patient treatment months [Keane WF, et al. ISPD Guidelines/Recommendations. Adult peritoneal dialysis-related peritonitis treatment recommendations: 2000 update. Perit Dial Int 2000; 20:396-411.]. Gram-positive organisms account for over 80% of continuous ambulatory peritoneal dialysis (PD)-associated peritonitis. Recent fear of vancomycin-resistant enterococci (VRE) has prompted suggestions of limiting vancomycin use. Fifty-one episodes of peritonitis in 30 patients studied over 2 years were evaluated. Cloudiness of the PD fluid and/or abdominal pain were considered suggestive of peritonitis and were confirmed by cell count and culture. Baseline cell count, Gram stain, and cultures were obtained, with periodic follow-up. Patients were randomized to receive either vancomycin 1 g/L intraperitoneally (IP) as loading dose, repeated on day 5 or day 8, depending on residual renal function, for 2 weeks, or cefazolin 1 g in the first PD bag and continued with 125 mg/L every exchange for 2 or 3 weeks, depending on culture results. All patients also received gentamicin 40 mg IP every day until the culture results were available. A similar randomized trial comparing vancomycin and cefazolin in the past used a lower concentration of cefazolin 50 mg/L [Flanigan MJ, Lim VS. Initial treatment of dialysis associated peritonitis: a controlled trial of vancomycin versus cefazolin. Perit Dial /nt 1991; 11:31-7.]. Peritoneal dialysate fluid cultures revealed 31(60.7%) gram-positive organisms, 7(13.7%) gram-negative organisms, and 2 (3.9%) cultured yeast; 11 (21.5%) cultures yielded no growth. The incidence of peritonitis at our center was 1 episode every 42 patient treatment months. No case of VRE was noted. There was no statistical difference in clinical response or relapse rate for the two protocols. It was the authors' and nurses' observation that patient compliance and satisfaction was better with vancomycin, and the cost per treatment was 23% less than cefazolin. Based on these data we believe vancomycin should still be considered for first-line treatment of PD-associated peritonitis

45. Khan S, Gupta DK, Khan DN. Comparative study of three antimicrobial drugs protocol (Ceftriaxone, Gentamicin/Amikacin and Metronidazole) versus two antimicrobial drugs protocol (Ceftriaxone and Metronidazole) in cases of intra-abdominal sepsis. Kathmandu University Medical Journal 2005;med.(1):55-63.
    Ref ID: 389
    Abstract: BACKGROUND: Treatment of intra-abdominal sepsis with antibacterial drugs should be initiated as soon as possible diagnosis is made before surgery and continued in the post operative period, unless required to be changed (when there is no satisfactory clinical response). The ideal agent (s) and duration of therapy remains somewhat controversial. However, early experimental and subsequent clinical studies have indicated that the spectrum of chosen antibacterial activity must encompass both colonic

aerobes and anaerobes including B. fragilis. There are a number of multi drug protocols that are used to treat intra-abdominal septic conditions. Empiric use of these protocols not only adds toxicity to already ill patient but therapy becomes costly and utilizes human resource, unnecessarily. AIM OF STUDY: To study the clinical efficacy of the treatment of intra-abdominal sepsis with protocol -A (Ceftriaxone, Metronidazole and aminoglycoside) versus protocol -B. (Ceftriaxone and Metronidazole). MATERIAL AND METHODS: This is a prospective randomized study conducted at NGMC, Nepalgunj, Nepal (2003-2004) on the patient attending for the treatment of intra-abdominal sepsis. Patients included in this study were of inflammation, obstruction with or without gangrene and perforation of appendix, small bowel and large bowel with localized or generalized peritonitis. These patients were managed surgically by- appendicectomy, closure of perforation, resection and anastomosis (R & A) and resection and proximal colostomy. Patients of large bowel obstruction without gangrene and small bowel gangrene were managed by R & A. These patients had significant faecal spillage at the surgical site as well as in the peritoneum. At the end of operation peritoneum and surgical site of all cases were washed with saline and povidone-iodine solution. They were put on one of the two protocols for post-operative treatment. A total 59 patients were included in this study. 32 cases were treated with protocol- A and rest 27 cases were treated with protocol- B. These cases were selected randomly for this study. Their outcome was compiled and compared under following headings: postoperative recovery, postoperative pyrexia, wound infection and dehiscence, anastomotic leak, residual abscess and cost of therapy. STATISTICAL ANALYSIS: Statistical analysis was done with the help of Chi square test. RESULT: Of the 59 patients, 32 were randomized to group I, 27 to group II. These groups were comparable in age, weight, sex and duration of therapy. Uneventful recovery was noted in 87.5 % (28/32) in -group I where as in 70.37% (19 /27) in-group II. Complications were observed in 12.5% in-group I where as 29.63 % in-group II. 10 patients in-group I where as 7 patients in -group II had surgical site infections (SSIs). All of these had superficial wound infection with/or without dehiscence of small portion of wound. A single case of residual abscess and anastomotic leak was observed. Postoperative pyrexia was noted in 8 patients in-group I where as in 6 patients in-group II. In pyrexia, temperature ranged from 99-104 0F. Finally except one case, rest of the cases recovered. On follow up after 3weeks, the cases recovered were doing well. CONCLUSION: At least three conclusions can be drawn from this study. Firstly protocol A is equally effective as protocol B. Secondly; it appears that combining aminoglycoside with Ceftriaxone therapeutically has no significant (P = 0.09) benefit over Ceftriaxone alone. Finally protocol A is less expensive in terms of total therapy than protocol B and can be used without fear even in subnormal functioning kidney

46. Kirkpatrick JR, Anderson BJ, Louie JJ, Stiver HG. Double-blind comparison of metronidazole plus gentamicin and clindamycin plus gentamicin in intra-abdominal infection. Surgery 1983;93(1 II):215-6.
Ref ID: 300
Abstract: The study was designed to compare the efficacy and side effects of metronidazole, 500 mg intravenously at 8-hour intervals, with clindamycin, 800 mg intravenously at

8-hour intervals, in patients with proved or suspected mixed aerobic-anaerobic intra-abdominal sepsis. Twenty-nine patients received metronidazole and 28 patients received clindamycin. All received gentamicin, 1 to 1.5 mg/kg intravenously at 8-hour intervals. Feces were assayed for Clostridium difficile toxin before therapy, after therapy, and when diarrhea occurred. Abscesses were present in 12 patients and were drained in 10. Peritonitis was found in 13 patients and septicemia in 9. Anaerobic organisms were isolated in 23 patients, being mixed with aerobes in all but 2 instances. Aerobes alone were present in 22 patients. Seven anaerobic bacteremias and 8 aerobic bacteremias occurred. In the metronidazole group, 20 infections resolved (77%), 2 improved, and 3 failed to respond to treatment. One case was not evaluable. In the clindamycin group, 24 resolved (86%), 1 improved, and 3 failed. Mean fever index was 65.7 degree-hours for the metronidazole group and 76.6 degree-hours for the clindamycin group. Diarrhea occurred in 4 patients receiving metronidazole and in 5 patients receiving clindamycin. C. difficile toxin was isolated in 2 patients receiving metronidazole without diarrhea and in 2 patients receiving clindamycin. Rashes were observed in 3 clindamycin patients and serum glutamic-oxaloacetic transaminase was significantly raised in 3 patients, 1 receiving metronidazole and 2 receiving clindamycin. Both metronidazole and clindamycin plus gentamicin appear to have equal efficacy in intra-abdominal infections, the incidence of side effects being slightly higher with clindamycin

47. Leaper DJ, Kennedy RH, Sutton A, Johnson E, Roberts N. Treatment of acute bacterial peritonitis: a trial of imipenem/cilastatin against ampicillin-metronidazole-gentamicin. Scandinavian journal of infectious diseases Supplementum 1987;52:7-10.
    Ref ID: 1130
    Abstract: Imipenem/cilastatin at a dose of 0.5 g six hourly was compared to conventional combination therapy with ampicillin 0.5 g six hourly, metronidazole 0.5 g eight hourly and gentamicin 80 mg eight hourly (with dose adjustment by trough and peak serum levels) in the treatment of severe intra-abdominal infections. All antibiotics were given intravenously. Forty-five patients entered the trial. Of the 19 evaluable patients in the imipenem/cilastatin group, 16 were clinically cured with five microbiological successes and two failures. Of 24 evaluable patients in the combination group, 22 were clinically cured with one microbiological success and one failure. One patient in each group suffered an adverse effect. Patients in the I/C group tended to be older with more women and more severe infections. The origin of peritonitis was similar. I/C did not differ from combination therapy in efficacy or safety and was comparable in cost. However, I/C was easier to administer than combination therapy and there was no need for serum concentration monitoring

48. Leung CB, Szeto CC, Chow KM, Kwan BC, Wang AY, Lui SF, et al. Cefazolin plus ceftazidime versus imipenem/cilastatin monotherapy for treatment of CAPD peritonitis--a randomized controlled trial. Perit Dial Int 2004;24(5):440-6.
    Ref ID: 409
    Abstract: BACKGROUND: Peritonitis is a serious complication of peritoneal dialysis (PD). We studied the efficacy of imipenem/cilastatin monotherapy in the treatment of PD-related peritonitis. METHODS: We performed an open-label, randomized control

study comparing imipenem/cilastatin monotherapy (treatment group) versus cefazolin plus ceftazidime (control group) in the treatment of PD peritonitis. The result was further compared to a historic group treated with cefazolin plus netilmycin. Outcome measures were primary response rate at day 10 and complete cure rate. RESULTS: We enrolled 51 patients in the treatment group, 51 in the control group, and identified 96 in the historic group. The primary response rate to the assigned antibiotics was 49.0%, 51.0%, and 49.0% for the treatment, control, and historic groups, respectively (p = 0.97). The primary response rate allowing for change in antibiotic was 82.4%, 90.2%, and 82.3%, respectively, for the three groups (p = 0.41). The complete cure rate was 72.5%, 80.4%, and 82.3%, respectively (p = 0.60). Tenckhoff catheter removal was needed in 6 cases in the treatment group, 6 cases in the control group, and 13 cases in the historic group (p = 0.90). CONCLUSIONS: We concluded that monotherapy of imipenem/cilastatin has similar efficacy compared to the two standard regimens of cefazolin plus ceftazidime or netilmycin in the treatment of PD peritonitis

49. Liu X-M. The value of therapeutic paracentesis, peritoneal lavage and abdominal antibiotic administration in cirrhotic patients with spontaneous bacterial peritonitis. Chinese Journal of Clinical Hepatology 2000;16(3):175-7.
Ref ID: 883

50. Lui SL, Cheng SW, Ng F, Ng SY, Wan KM, Yip T, et al. Cefazolin plus netilmicin versus cefazolin plus ceftazidime for treating CAPD peritonitis: effect on residual renal function. Kidney Int 2005;68(5):2375-80.
Ref ID: 392
Abstract: UNLABELLED: BACKGROUND. The International Society for Peritoneal Dialysis (ISPD) treatment guidelines for continuous ambulatory peritoneal dialysis (CAPD) peritonitis 2000 recommended the use of cefazolin plus ceftazidime as the initial empirical therapy in patients with residual renal function (RRF). However, this treatment regimen has not been compared with the conventional regimen of cefazolin plus netilmicin in prospective, randomized controlled trials. METHODS: Stable CAPD patients who developed clinical evidence of peritonitis were randomized to receive intraperitoneal (i.p.) cefazolin plus netilmicin or cefazolin plus ceftazidime once daily in the long dwell for 14 days. For patients with RRF (>1 mL/minute) before entry into the study (N= 50), RRF and 24-hour urine volume were measured at days 1, 14, and 42 after commencement of i.p. antibiotic treatment. RESULTS: One hundred and two patients were recruited into the study. The primary cure rates of i.p. cefazolin plus netilmicin and cefazolin plus ceftazidime were 66.7% and 64.7%, respectively. The overall cure rate for the 2 treatment regimens was 82.3% for both. Seven patients (14%) from each treatment group required removal of the dialysis catheters due to treatment failure. Relapse of peritonitis occurred in 2 patients (4%) in both treatment groups. Thirty-six patients with RRF at baseline achieved primary cure of their peritonitis by the assigned antibiotics. In this subgroup of patients, their RRF and daily urine volume showed significant reduction at day 14 and returned to near baseline values at day 42. The degree of reduction in RRF and urine volume did not differ significantly between the patients treated with cefazolin plus netilmicin and cefazolin plus ceftazidime. CONCLUSION: Intraperitoneal cefazolin plus

netilmicin and cefazolin plus ceftazidime have similar efficacy as empirical treatment for CAPD peritonitis. In CAPD patients with RRF, significant but reversible reduction in RRF and 24-hour urine volume could occur after an episode of peritonitis, despite successful treatment by i.p. antibiotics. The effect of i.p. cefazolin plus netilmicin, or i.p. cefazolin plus ceftazidime on RRF in CAPD patients with peritonitis does not appear to be different. Our findings do not support the routine use of cefazolin and ceftazidime as the empirical treatment for CAPD peritonitis

51. Luke M, Iversen J, Sondergaard J, Kvist E, Lund P, Andersen F, et al. Ceftriaxone/metronidazole is more effective than ampicillin/netilmicin/metronidazole in the treatment of bacterial peritonitis. Eur J Surg 1991;157(6-7):397-401.
Ref ID: 559
Abstract: In a prospective, open, controlled clinical study, 190 consecutive patients who were thought to have bacterial peritonitis before operation, were randomised to antibiotic treatment during and after operation with either ceftriaxone 1 g plus metronidazole 1.5 g once daily (n = 94) or ampicillin 2 g plus netilmicin 150 mg twice daily plus metronidazole 1.5 g once daily (n = 96). Incisional and deep surgical wound infections, postoperative pneumonia and urinary tract infection as well as deaths caused by infection were recorded. Ceftriaxone-metronidazole was significantly more effective than ampicillin-netilmicin-metronidazole, 6/94 wound related infections (6%) compared to 18/96 (19%) (p = 0.02). In patients with peritonitis caused by a perforated colon or appendix the rates of clinical failure were 6% and 28%, respectively. We consider ceftriaxone plus metronidazole an efficient and easily administered antibiotic regimen in patients with bacterial peritonitis, and both the wide range of activity against Gram-negative aerobic rods and the long half life of ceftriaxone seem to be beneficial

52. Lupo A, Rugiu C, Bernich P, Laudon A, Marcantoni C, Mosconi G, et al. A prospective, randomized trial of two antibiotic regimens in the treatment of peritonitis in CAPD patients: teicoplanin plus tobramycin versus cephalothin plus tobramycin. J Antimicrob Chemother 1997;40(5):729-32.
Ref ID: 485
Abstract: A multicentre, comparative, randomized study was performed to compare the efficacy and tolerability of two antibiotic regimens in the treatment of peritonitis in continuous ambulatory peritoneal dialysis (CAPD) patients: teicoplanin plus tobramycin versus cephalothin plus tobramycin. After informed consent had been obtained, 68 patients were randomized prospectively to receive either teicoplanin plus tobramycin or cephalothin plus tobramycin. Patients were followed throughout the study and for up to 4 weeks after the end of treatment, when clinical and microbiological parameters were assessed again. The incidence of clinical failure was 4.6 times higher in the cephalothin plus tobramycin group than in the teicoplanin plus tobramycin group (7/28 versus 2/37; P < 0.05). There was no significant difference in bacterial eradication between the two groups. Local and systemic tolerability were good for both regimens. The study shows that teicoplanin plus tobramycin is more effective than cephalothin plus tobramycin and might become a 'first-line' treatment for peritonitis in CAPD patients

53. Lye WC, Wong PL, van der Straaten JC, Leong SO, Lee EJ. A prospective randomized comparison of single versus multidose gentamicin in the treatment of CAPD peritonitis. Adv Perit Dial 1995;11:179-81.
Ref ID: 510
Abstract: There is an increasing trend towards the use of aminoglycosides in a once-daily dose administration for the treatment of severe infections in nonrenal failure patients. The use of once-daily dose aminoglycoside therapy may be associated with a reduction in toxicity. We performed a prospective randomized study comparing once-daily versus multiple-dose gentamicin in the treatment of continuous ambulatory peritoneal dialysis (CAPD) peritonitis. Seventy-three patients with 100 new episodes of peritonitis were enrolled in the study. At presentation of peritonitis, the patients were alternately assigned to receive either intraperitoneal gentamicin at a dose of 40 mg/2 L dialysate administered as a once-daily dose or gentamicin at a dose of 10mg/2 L dialysate administered 4 times per day. All patients also received intraperitoneal vancomycin at a dose of 1 g per week. There were no significant differences in the treatment success (88% vs 82%, p = NS) and relapse (18% vs 20%, p = NS) rates between the once-daily dose and multiple-dose groups. The mean trough serum gentamicin level was higher in the once-daily dose group compared to the multiple-dose group (0.75 +/- 0.72 vs 1.50 +/- 1.40 mg/L). In conclusion, gentamicin administered in a once-daily dose is as effective as multiple-dose administration in the treatment of CAPD peritonitis. The lower gentamicin level with once-daily dose administration may be associated with a reduction in aminoglycoside toxicity

54. Lye WC, Lee EJ, van der Straaten J. Intraperitoneal vancomycin/oral pefloxacin versus intraperitoneal vancomycin/gentamicin in the treatment of continuous ambulatory peritoneal dialysis peritonitis. Perit Dial Int 1993;13:Suppl-50.
Ref ID: 536
Abstract: Sixty patients were enrolled in a prospective, randomized study to evaluate the efficacy of two different regimens for the empirical treatment of continuous ambulatory peritoneal dialysis (CAPD) peritonitis. At presentation, Group I received intraperitoneal vancomycin (1 g) and oral pefloxacin (400 mg b.i.d.), and Group II intraperitoneal vancomycin (1 g) and gentamicin (80 mg loading dose, followed by 15 mg/2 L). Treatment duration was 14 days. Despite randomization, Group I had significantly more patients with primary Candida peritonitis. When fungal peritonitis was excluded from analysis, there were no significant differences in the treatment success rate (Group I, 73.3% vs Group II, 80.0%, p = NS), number of relapses (Group I, 0 vs Group II, 1), and Tenckhoff catheter removal rates (Group I, 26.6% vs Group II, 16.6%, p = NS) between the two groups. The patients treated with pefloxacin had an increased incidence of nausea and vomiting. In selected situations oral pefloxacin may be a suitable substitute for intraperitoneal gentamicin as out-patient therapy for CAPD peritonitis

55. Merchant MR, Anwar N, Were A, Uttley L, Tooth JA, Gokal R. Imipenem versus netilmicin and vancomycin in the treatment of CAPD peritonitis. Adv Perit Dial 1992;8:234-7.
Ref ID: 549
Abstract: Imipenem/cilastatin is a new thienamycin antibiotic with a broad bactericidal

spectrum. We undertook a prospective randomised study to compare the safety and efficacy of intraperitoneal (IP) imipenem/cilastatin (2 gm daily) [group A; 21 patients, mean age 49.2 years] with a combination of IP netilmicin and vancomycin (500 and 60-100 mg daily resp.) [group B; 20 patients, mean age 55.2 years] in CAPD peritonitis. Each patient underwent 4 daily CAPD exchanges with antibiotics in alternate exchanges. The causative organisms were similar in both the groups as was the duration of therapy (gr.A: 6.8 +/- 0.27 days; gr.B: 7.2 +/- 0.51 days; p = NS). Complete cure was marginally better with imipenem/cilastatin (gr.A; 94.1%, gr.B: 83.3%) with less relapses (gr.A: 1 episode; gr.B: 3 episodes). One episode in gr.A (S. aureus) and 2 in gr.B (Yeast & Proteus) failed to resolve and required catheter removal. Two gr. A patients developed generalised convulsions which settled after discontinuation of the drug. Whilst the results show no significant difference in the outcome in the two groups, the use of IP imipenem would offer a possible advantage as a single antibiotic. Larger experience is needed before imipenem can be recommended as a 'blind' first line agent for CAPD peritonitis

56. Mikamo H, Tamaya T, Ito K, Izumi K, Tanaka K, Watanabe K. Effectiveness of switch therapy for peritonitis. Jpn J Antibiot 2007;60(4):200-5.
    Ref ID: 366
    Abstract: The usefulness of switch therapy, from injection to oral medicine, for the treatment of peritonitis was evaluated. Thirty-five patients, who agreed to enroll the study, were randomly assigned to four treatment groups; one group treated with carbapenem antibacterial agent alone and three groups treated with switch therapy, in which injectable quinolone was switched to oral quinolone. For the intravenous administration group, if the patient showed the tendency of improvement by the third day, the intravenous injection was continued. However, if the patient did not show any improvement, the medication was changed to other medicine. For the switch therapy group, if the body temperature dropped to 37.5 degrees C or lower for at least 8 hours and if blood findings and clinical findings showed the tendency of improvement by the fourth day, the medication was switched to oral medicine. There was no difference in therapeutic effects among treatment groups. However, both duration of hospitalization and total medical costs were significantly reduced in the switch therapy groups comparing to those in the intravenous administration group. The results of this study showed that the switch therapy, from injection to oral medicine, was one of useful treatments in treating peritonitis

57. Millikin SP, Matzke GR, Keane WF. Antimicrobial treatment of peritonitis associated with continuous ambulatory peritoneal dialysis. Perit Dial Int 1991;11(3):252-60.
    Ref ID: 560
    Abstract: A multitude of therapeutic regimens have been proposed for the management of peritonitis associated with continuous ambulatory peritoneal dialysis (CAPD). There are, however, few clinical trials that have evaluated the efficacy of these proposed regimens in a prospective, comparative fashion. This retrospective report is a tabulation of the published data on antimicrobial treatment of CAPD-related peritonitis. The results are presented for combination and mono-drug therapies; Gram-positive bacterial, Gram-negative bacterial and fungal infections; intravenous, oral and intraperitoneal (i.p.) routes of drug administration; various dosages and dosing intervals; and clinical response and

relapse rates. The apparent optimal combination regimen for empiric treatment of peritonitis is vancomycin administered in 1 dialysis exchange/week with ceftazidime. This regimen avoids the toxicity associated with the use of aminoglycosides while maintaining effectiveness

58. Muller E, Heinkelein J. Ceftazidime versus cefotaxime in the therapy of severe infections in intensive care patients. Infection 1987;15:Suppl-8.
Ref ID: 623
Abstract: In a randomized controlled, clinical study the efficacy of ceftazidime at a dosage of 2 g b. i. d. was compared to that of cefotaxime at a dosage of 2 g t. i. d. or more in the treatment of pneumonia or peritonitis in intensive care patients. 61 of 67 assessable cases were evaluable. In the ceftazidime group ten out of 11 patients with pneumonia and 17 out of 20 with peritonitis showed a clinical success. In the cefotaxime group 15 out of 19 patients with pneumonia and eight out of 11 with peritonitis were clinically cured or improved. With ceftazidime an overall success was achieved in 87% of the patients (27 out of 31) and with cefotaxime in 77% of the patients (23 out of 30). Two patients in the cefotaxime group developed a reinfection. Five of the patients treated with cefotaxime and four of those treated with ceftazidime were therapeutical failures. Escherichia coli, Pseudomonas, Klebsiella, Enterobacter and Proteus species as well as Staphylococcus aureus and enterococci were the most frequent organisms isolated prior to therapy. Following ceftazidime therapy 30 of the 32 gram-negative species were eliminated, whereas in the cefotaxime group the number of gram-negative species isolated was reduced from 28 to ten. Gram-positive species isolated in ten cases prior to therapy, were still present in seven cases after ceftazidime therapy and the number of gram-positive organisms was reduced from 19 to ten following treatment with cefotaxime. In one patient therapy with ceftazidime was stopped due to urticaria. Reversible leukopenia was observed in a patient treated with ceftazidime and a cholestatic reaction in a patient treated with cefotaxime. In both groups a slight elevation of transaminases was seen

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Abstract: In a randomized controlled, clinical study the efficacy of ceftazidime at a dosage of 2 g b. i. d. was compared to that of cefotaxime at a dosage of 2 g t. i. d. or more in the treatment of pneumonia or peritonitis in intensive care patients. 61 of 67 assessable cases were evaluable. In the ceftazidime group ten out of 11 patients with pneumonia and 17 out of 20 with peritonitis showed a clinical success. In the cefotaxime group 15 out of 19 patients with pneumonia and eight out of 11 with peritonitis were clinically cured or improved. With ceftazidime an overall success was achieved in 87% of the patients (27 out of 31) and with cefotaxime in 77% of the patients (23 out of 30). Two patients in the cefotaxime group developed a reinfection. Five of the patients treated with cefotaxime and four of those treated with ceftazidime were therapeutical failures. Escherichia coli, Pseudomonas, Klebsiella, Enterobacter and Proteus species as well as Staphylococcus aureus and enterococci were the most frequent organisms isolated prior

to therapy. Following ceftazidime therapy 30 of the 32 gram-negative species were eliminated, whereas in the cefotaxime group the number of gram-negative species isolated was reduced from 28 to ten. Gram-positive species isolated in ten cases prior to therapy, were still present in seven cases after ceftazidime therapy and the number of gram-positive organisms was reduced from 19 to ten following treatment with cefotaxime. In one patient therapy with ceftazidime was stopped due to urticaria. Reversible leukopenia was observed in a patient treated with ceftazidime and a cholestatic reaction in a patient treated with cefotaxime. In both groups a slight elevation of transaminases was seen

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Abstract: BACKGROUND & AIMS: Treatment of spontaneous bacterial peritonitis currently involves intravenous antibiotic administration. To test the possibility of treating spontaneous bacterial peritonitis with oral antibiotics, oral ofloxacin was compared with intravenous cefotaxime in this infection. METHODS: One hundred twenty-three cirrhotics with uncomplicated spontaneous bacterial peritonitis (no septic shock, grade II-IV hepatic encephalopathy, serum creatinine level of > 3 mg/dL, and gastrointestinal hemorrhage or ileus) were randomly given oral ofloxacin (64 patients) or intravenous cefotaxime (59 patients). RESULTS: Infection resolution rate was 84% in the ofloxacin group and 85% in the cefotaxime group. Peak serum levels and trough serum and ascitic fluid levels of ofloxacin and cefotaxime measured on days 3 (23 patients) and 6 (11 patients) of therapy were greater than the minimal inhibitory concentration of isolated organisms. Hospital survival rate was 81% in each group of patients. Blood urea nitrogen and hepatic encephalopathy at diagnosis were associated with prognosis. None of the 36 nonazotemic patients with community-acquired spontaneous bacterial peritonitis and without hepatic encephalopathy developed complications during hospitalization, and all were alive at time of discharge. CONCLUSIONS: Oral ofloxacin is as effective as intravenous cefotaxime in uncomplicated spontaneous bacterial peritonitis. Nonazotemic cirrhotic patients with uncomplicated community-acquired spontaneous bacterial peritonitis and without hepatic encephalopathy have an excellent prognosis and may be treated with oral ofloxacin without requiring hospitalization

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Abstract: Patients enrolled in two double-blind multicenter studies were evaluated for the development of hypoprothrombinemia during treatment with cephalosporins. Patients with pneumonia or peritonitis received ceftizoxime, cefotaxime, or moxalactam. The incidence of hypoprothrombinemia was greater in patients with peritonitis (12 of 49) than in those with pneumonia (5 of 96; P less than 0.05). Overall, moxalactam was associated with a higher incidence of hypoprothrombinemia (13 of 52) than either ceftizoxime (1 of

43; P less than 0.05) or cefotaxime (3 of 50; P less than 0.05), and moxalactam patients incurred the highest average increase in prothrombin time (3.7 s) as compared with either ceftizoxime (0.5 s; P less than 0.05) or cefotaxime (0.9 s; P less than 0.05) patients. The occurrence of hypoprothrombinemia in moxalactam patients with peritonitis was not related to dosage, duration of therapy, age, sex, race, or renal or hepatic function. The degree of ileus was, however, strongly related to the development of coagulopathy in moxalactam-treated patients only

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Abstract: Eighty-five patients were randomly allocated to receive either piperacillin (n = 38) or cefuroxime plus metronidazole (n = 45) after surgical treatment of diffuse peritonitis; 78 were evaluable. A mean of 1.5 (piperacillin group) and 1.7 (cefuroxime/metronidazole group) pathogens/patient were identified. Twenty-seven patients (71%) were successfully treated in the piperacillin group compared with 29 (64%) in the cefuroxime/metronidazole group. These data suggest that piperacillin was neither better nor worse than cefuroxime/metronidazole in diffuse, secondary peritonitis

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Abstract: BACKGROUND/AIMS: Hepatic cirrhosis is a common, chronic disease. Spontaneous bacterial peritonitis (SBP) is a dangerous complication, which must be treated as soon as it has been diagnosed. This usually requires hospitalization of the patient and parenteral antibiotic therapy for 10 to 14 days. The present study was carried out to compare the therapeutic effects of pefloxacin with ampicillin plus gentamicin in the management of SBP. METHODOLOGY: The patients were divided into two groups at random. Group A consisted of nine patients who received parenteral ampicillin plus gentamicin. Group B consisted of thirteen patients who received pefloxacin. RESULTS: 55% of patients in group A and 100% of patients in group B responded to treatment. No major side effects were observed in either of the groups. CONCLUSIONS: Considering the benefits of oral treatment and the low incidence of side effects of pefloxacin we conclude that this regimen should be the treatment of choice for SBP patients, especially when there is a shortage of hospital beds

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Abstract: BACKGROUND/AIM: Cefotaxime is considered the first-choice antibiotic for empirical treatment in cirrhotic patients developing bacterial infections. It has been suggested that amoxicillin-clavulanic acid could be an alternative to cefotaxime, particularly in patients developing bacterial infections while on prophylactic norfloxacin. The aim of the present study was to compare amoxicillin-clavulanic acid with cefotaxime in the treatment of bacterial infections in cirrhosis. METHODS: Ninety-six hospitalized cirrhotic patients with suspicion of bacterial infection were prospectively included and randomized into two groups: one group (n=48) received amoxicillin-clavulanic acid, first intravenously 1 g-0.2 g every 8 h, and then orally 500 mg-125 mg every 8 h, and the other group (n=48) received intravenous cefotaxime 1 g every 6 h. Patients were stratified for previous prophylaxis with norfloxacin and ascitic fluid infection. RESULTS: Sixteen patients were excluded from the analysis because bacterial infection was not demonstrated or because of secondary peritonitis. Therefore, 38 patients from the amoxicillin-clavulanic acid group and 42 from the cefotaxime group were finally analyzed. There were 24 ascitic fluid infections in each group. Infection resolution (86.8% vs 88%, 95% CI: -0.15 to 0.13, p NS), spontaneous bacterial peritonitis resolution (87.5% vs 83.3%, 95% CI: -0.15 to 0.24, p NS), duration of treatment, incidence of complications, time of hospitalization and hospital mortality were similar in both groups. Considering patients on prophylactic norfloxacin, infection resolution was also similar (100% vs 83.3%, 95% CI: -0.04 to 0.37, p NS). No adverse events were observed in either of the two groups. The cost of antibiotics was statistically lower in the amoxicillin-clavulanic acid group (p<0.001). CONCLUSIONS: Amoxicillin-clavulanic acid is as effective as cefotaxime in the treatment of bacterial infections in cirrhotic patients, but is less expensive and can be administered orally. These results suggest that amoxicillin-clavulanic acid is an effective alternative to cefotaxime for the empirical treatment of bacterial infections in cirrhosis

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Abstract: Cefotaxime (CTX) is considered one of the first-choice antibiotics in the therapy of spontaneous bacterial peritonitis (SBP) in cirrhosis. Because CTX is largely metabolized in the liver, this drug may also be effective in SBP by administering lower doses than those habitually used. To investigate this possibility, a prospective, randomized, multicenter study was performed to compare the therapeutic efficacy of two different dosages of CTX in 143 patients with SBP: 71 (group I) were allocated to receive a

high dose (2 g every 6 hours, which is one of the most frequently recommended doses in this infection), and 72 (group II) were allocated to receive a low dose (2 g every 12 hours). At inclusion, both groups were similar in relation to clinical and laboratory data, with the exception of a higher incidence of positive ascitic fluid culture in group I than in group II (59% vs. 40%; P = .029). The rate of infection resolution was similar for both groups (77% vs. 79%). Hospital survival was also similar in both groups (69% vs. 79%). No difference was observed between patients with positive or negative ascitic fluid cultures with regard to infection resolution and patient survival. The duration of antibiotic therapy was similar in both groups (9.0 +/- 3.3 days in group I vs. 8.8 +/- 3.1 days in group II). In a subset of 13 patients from group I and 11 patients from group II CTX levels were determined in serum (peak and trough) and ascitic fluid (concomitantly with trough serum). Peak serum levels were similar in patients from both groups.(ABSTRACT TRUNCATED AT 250 WORDS)

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Abstract: In an attempt to determine the optimal duration of therapy of spontaneous bacterial peritonitis, 100 patients with neutrocytic ascites and suspected spontaneous bacterial peritonitis were randomized to short-course vs. long-course treatment groups. Empiric therapy was initiated before the results of ascitic fluid culture were available. Of the 90 patients who met strict criteria for spontaneous bacterial peritonitis or culture-negative neutrocytic ascites, 43 were randomized to a group receiving 5 days and 47 to a group receiving 10 days of single-agent cefotaxime, 2 g IV every 8 hours. Infection-related mortality (0% vs. 4.3%), hospitalization mortality (32.6% vs. 42.5%), bacteriologic cure (93.1% vs. 91.2%), and recurrence of ascitic fluid infection (11.6% vs. 12.8%) were not significantly different between the 5- and 10-day treatment groups, respectively. Recurrence rates were comparable to the values reported in the literature. The cost of antibiotic and antibiotic administration were significantly lower in the short-course group. Short-course treatment of spontaneous bacterial peritonitis is as efficacious as long-course therapy and significantly less expensive

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Abstract: The peritoneum is one of the most common extrapulmonary sites of tuberculous infection. Peritoneal tuberculosis remains a significant problem in parts of the world where tuberculosis is prevalent. Increasing population migration, usage of more potent immunosuppressant therapy and the acquired immunodeficiency syndrome epidemic has contributed to a resurgence of this disease in regions where it had previously been largely controlled. Tuberculous peritonitis frequently complicates patients with underlying end-stage renal or liver disease that further adds to the diagnostic difficulty. The diagnosis of this disease, however, remains a challenge because of its insidious nature, the variability of its presentation and the limitations of available diagnostic tests. A high index

of suspicion is needed whenever confronted with unexplained ascites, particularly in high-risk patients. Based on a systematic review of the literature, we recommend: tuberculous peritonitis should be considered in the differential diagnosis of all patients presenting with unexplained lymphocytic ascites and those with a serum-ascites albumin gradient (SAAG) of <11 g/L; culture growth of Mycobacterium of the ascitic fluid or peritoneal biopsy as the gold standard test; further studies to determine the role of polymerase chain reaction, ascitic adenosine deaminase and the BACTEC radiometric system for acceleration of mycobacterial identification as means of improving the diagnostic yield; increasing utilization of ultrasound and computerized tomographic scan for the diagnosis and as a guidance to obtain peritoneal biopsies; low threshold for diagnostic laparoscopy; treatment for 6 months with the first-line antituberculous drugs (isoniazid, rifampicin, ethambutol and pyrazinamide) in uncomplicated cases. [References: 122]

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Ref ID: 1199
Abstract: Two hundred forty-nine patients with presumed aerobic-anaerobic mixed peritoneal or similar soft-tissue infections were treated in a prospective randomized trial with either cefotaxime alone (125 patients) or the combination of gentamicin/clindamycin (124 patients) . Primary and complicating foci of sepsis were cultured for both aerobic and anaerobic pathogen identification and antibiotic susceptibility. In vitro aerobic disk sensitivities (338 isolates) to cefotaxime were 84%, to gentamicin 98%; anaerobic agar diffusion sensitivities (438 isolates) to cefotaxime were 89%, to clindamycin 98%. Only enterococci and Pseudomonas species were consistently resistant to cefotaxime. Infection was eliminated in 81% of those treated with either antibiotic regimen, yet sepsis recurred in but 6% of those treated with cefotaxime compared with 13% in those given gentamicin/clindamycin. Eight (6%) patients demonstrated nephrotoxicity from gentamicin (serum creatinine increased more than 1.5 mg/100 ml over pretreatment level). Incidence and severity of other adverse reactions were identical for the two groups and con-

sisted primarily of phlebitis and diarrhea. Two patients died of uncontrolled sepsis despite cefotaxime therapy, as did three patients who received gentamicin/clindamycin. Although susceptibility results suggested superiority of gentamicin/clindamycin, there was clinical equality in therapeutic benefit and greater safety with the use of cefotaxime alone. Considering extra expenditures for persisting or recurrent sepsis, need for concomitant antibiotics, and renal failure, treatment with gentamicin/clindamycin cost an average of $526.00 more per patient than treatment with cefotaxime.

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    Abstract: The efficacy and safety of cefotaxime were compared with the efficacy and safety of gentamicin plus clindamycin in the treatment of peritonitis and soft-tissue infection in 112 patients. Patients received 20 mg of intravenous cefotaxime/kg of body weight every 6 hr or 1 mg of gentamicin/kg every 8 hr plus 5 mg of clindamycin/kg every 6 hr (both intravenously). Therapy was continued for five to 10 days. The overall clinical cure rate was 82%, with no significant difference between cure rates in the two groups. Both antibiotic regimens were effective against aerobic and anaerobic isolates, although Pseudomonas aeruginosa, an occasional isolate of Enterobacter, and some anaerobes were resistant to cefotaxime. All clinical failures involved patients who had septicemia or who had received inadequate surgical treatment. Six (11%) of the patients who received combination therapy developed impaired renal function, as indicated by a rise in serum creatinine of 30%. No reduction in renal function was noted in patients given cefotaxime. The clinical efficacy of cefotaxime was equal to that of gentamicin plus clindamycin, and less nephrotoxicity was encountered with cefotaxime

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    Abstract: One hundred fifty-one patients with presumed aerobic-anaerobic mixed peritoneal infections were treated in a prospective, randomized trial with either cefotaxime alone (76) or the combination of gentamicin-clindamycin (75). Primary and complicating foci of sepsis were cultured for both aerobic and anaerobic pathogen identification and antibiotic susceptibility. In vitro aerobic disk sensitivities (114 isolates) to cefotaxime were 82% and to gentamicin, 88%; anaerobic agar-diffusion sensitivities (227 isolates) to cefotaxime were 87% and to clindamycin, 98%. Only enterococci and Pseudomonas sp were consistently resistant to cefotaxime. Infection was eliminated in 82% of those treated with cefotaxime and in 87% of those treated with the gentamicin-clindamycin combination, yet sepsis recurred in 11% of those treated with cefotaxime and in 13% for those given gentamicin-clindamycin. Five patients (7%) demonstrated nephrotoxicity for gentamicin. (Serum creatinine increased greater than 1.5 mg/100 ml over pretreatment levels.) Otherwise, incidence and severity of adverse reactions were identical for the two

groups and consisted primarily of phlebitis and diarrhea. One patient in each treatment group died of uncontrolled sepsis. Although results suggested a laboratory superiority of gentamicin-clindamycin, there was a clinical equality in therapeutic benefit and a greater safety following the use of cefotaxime alone

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Abstract: A clinical study of daily administrations of CTT (2g) and CMZ (4g) was performed by randomized double blind techniques in order to compare the clinical efficacy, side effects and usefulness. The 150 cases studied were as follows; Purulent peritonitis due to perforated gastrointestinal tracts (122 cases), traumatic peritonitis (4 cases), biliary peritonitis (7 cases), postoperative peritonitis (7 cases), intraabdominal abscess (6 cases); 4 cases were excluded from the statistical evaluation because of protocol deviation. 1. No significant differences in background parameters were found between the 2 groups. 2. Clinical evaluation of the efficacy rate by the attending physician revealed no significant differences between the 2 groups (CTT 82%, CMZ 74%). However, in severely perforated duodenal and/or gastric ulcer cases, greater clinical effectiveness was obtained in the CTT group than in the CMZ group (P less than 0.05). 3. Clinical evaluation of the efficacy rate by the committee revealed no significant differences between the 2 groups; 86% and 82% for the CTT and CMZ groups, respectively. However, in cases which showed marked effectiveness, although statistical significant differences were not found between the 2 groups (P less than 0.1), the CTT group (53%) was superior to the CMZ group (38%). In 122 cases of the purulent peritonitis, the efficacy rate was 92% in the CTT group and 86% in the CMZ group; this difference was also statistically significant by U-test (P less than 0.05). 4. The effectiveness was also evaluated by microbiological study in 90 cases. No significant differences were found in the ratio of eradication of isolated bacteria between the 2 groups; 30 of 44 cases (68%) in the CTT group and 34 of 46 cases (74%) in the CMZ group. 5. With regards to this eradication of bacterial strains; 115 of 119 strains (96.6%) were eradicated in the CTT group and 115 of 126 strains (91.3%) in the CMZ group. 6. Side-effects were noted in 2 cases in the CTT group; one case of nausea with chest discomfort and the other case of drug eruption. In the CMZ group, only 1 case of drug eruption was noted. Moreover, no significant differences were found in the laboratory findings between the 2 groups. Based on these results it was concluded that the clinical effectiveness of CTT (1 g twice daily) against peritonitis is as excellent as that of CMZ (2 g twice daily), both drugs being administered by drip infusion

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Abstract: This report describes a prospective, randomized comparison of oral ciprofloxacin and intraperitoneal vancomycin/netilmicin in the treatment of 50 consecutive episodes of CAPD peritonitis in 35 patients. Successful cure of peritonitis was achieved in 76% of subjects taking oral ciprofloxacin and 72% of those given intraperitoneal antibiotics. Satisfactory concentrations of ciprofloxacin in dialysate were achieved in all patients. Failure of ciprofloxacin was due to persistence of an isolate of intermediate sensitivity (1), to persistence with acquisition of resistance (1), and to relapse/reinfection in the remaining four cases (with resistant or moderately sensitive strains in three cases). Ciprofloxacin was well tolerated in the majority of cases. A significant rise in serum creatinine was noted in almost all patients taking oral ciprofloxacin. The advantages of oral drug administration indicate that oral ciprofloxacin is the preferred first-line treatment of CAPD-associated peritonitis

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Ref ID: 814
Abstract: Background/aims: Gold-standard treatment of spontaneous bacterial peritonitis currently involves 3rd generation cephalosporins. To evaluate the efficacy of ofloxacin in this infection, we compared a combined therapy with intravenous and oral ofloxacin to intravenous cefotaxime. Methods: Thirty cirrhotic patients with spontaneous bacterial peritonitis were assigned to receive either intravenous (1 g/12 h) cefotaxime for 7 days (n=17) or intravenous (200 mg/12 h) ofloxacin for 2 days followed by oral (200 mg/12 h) ofloxacin for 5 days (n=13). All cases had community-acquired spontaneous bacterial peritonitis. Results: The infection resolution rate on the 7 th day of therapy was 82.4% in the cefotaxime group and 92.3% in the ofloxacin group. Hospital survival rates were 82.4% and 100%, respectively. Conclusions: Oral ofloxacin after a short course of intravenous ofloxacin is effective in the treatment of uncomplicated spontaneous bacterial peritonitis. This regimen may allow physicians to treat these patients as outpatients as soon as their intravenous therapy is completed.

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Abstract: BACKGROUND/AIMS: Oral quinolones have been suggested as treatment of cirrhotic patients with uncomplicated spontaneous bacterial peritonitis. To evaluate the efficacy of oral quinolones in all patients with this complication, oral ciprofloxacin after a short course of intravenous (i.v.) ciprofloxacin was compared to i.v. ciprofloxacin. METHODS: Eighty patients were allocated to receive ciprofloxacin i.v. 200 mg/12 h for 7

days (group A, n= 40) or i.v. 200 mg/12 h during 2 days followed by oral 500 mg/12 h for 5 days (group B, n=40). All patients with spontaneous bacterial peritonitis admitted to the hospital were included. Twenty-five variables obtained 48 h after treatment were introduced into univariate and multivariate analyses to identify predictors of survival and outcome. RESULTS: In the baseline condition, no differences were found between the two groups in clinical data, hepatic and renal function tests and Child Pugh score. The infection resolution rate was 76.3 % in group A and 78.4 % in group B, and hospital survival was 77.5% in both groups. In multivariate analysis serum creatinine and serum leukocytes 48 h after treatment were associated with prognosis. CONCLUSIONS: Oral ciprofloxacin after a short course of i.v. ciprofloxacin is effective in the treatment of spontaneous bacterial peritonitis. This regimen can be applied to all patients admitted to the hospital with this complication, and could be an alternative to treating these patients as outpatients

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choice antibiotic for empirical treatment in cirrhotic patients developing spontaneous bacterial peritonitis. It has been suggested that ciprofloxacin could be an alternative to cefotaxime or ceftriaxone in cirrhotic patients developing spontaneous bacterial peritonitis. The aim of the present study was to compare oral ciprofloxacin with cefotaxime and ceftriaxone in the treatment of spontaneous bacterial peritonitis in cirrhotic patients. METHODOLOGY: Fifty-three hospitalized cirrhotic patients with spontaneous bacterial peritonitis were prospectively included and randomized into three groups: group A (n = 16); received orally 500 mg ciprofloxacin every 12 h, group B (n = 18); received intravenous cefotaxime 2 g every 8 h and group C (n = 19) received intravenous ceftriaxone 2 g every 24 h. RESULTS: 15 patients from the ciprofloxacin group, 17 from the cefotaxime group and 17 patients from the ceftriaxone group were finally analyzed. Spontaneous bacterial peritonitis resolution in three groups was found to be 80%, 76%, and 83%, respectively (p = NS). Incidence of complications and hospital mortality was similar in the three groups. No adverse events were observed in any of the three groups. The cost of the treatment was statistically lower in the ciprofloxacin group than in the cefotaxime group and ceftriaxone group (p < 0.001). CONCLUSIONS: These results suggest that orally ciprofloxacin is as effective as cefotaxime and ceftriaxone in the empirical treatment of spontaneous bacterial peritonitis in cirrhotic patients, and is also less expensive and can be administered orally

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Abstract: We describe the use of vancomycin in the therapy of gram-positive peritonitis in patients on CAPD. Two ways of administration were in comparison: a) the intraperitoneal (IP) route, with the intraperitoneal administration of 30 mg/l vancomycin for 10 days and b) the intravenous (IV) route with 2 infusions of 1 gram of vancomycin, the first one on the day of the diagnosis of gram-positive peritonitis and the second 7 days later. Each one of these therapeutic schedules was applied at random for 20 episodes of peritonitis out of 40 episodes with gram-positive organisms (28 Staph. albus, 10 Staph aureus and 2 Streptococcus). Remission of clinical symptoms occurred in 49-72 hours in both groups, while macroscopic clearing of dialysate effluent and sterilization of cultures were observed in 4-7 days. Recurrence of peritonitis was seen in 4 patients of the IV group 2 weeks after the administration of the second dose of vancomycin. We conclude that the use of vancomycin with either of the two ways of administration is of great value in the treatment of gram-positive peritonitis. The IV infusion was less successful but it seems to be useful for the out-patient treatment of gram-positive peritonitis

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Abstract: Patients being treated with continuous ambulatory peritoneal dialysis (CAPD) who developed peritonitis were prospectively randomised to receive either teicoplanin plus aztreonam or to receive cefuroxime. Antibiotics were administered intraperitoneally in each dialysis bag in concentrations of 20 mg/l teicoplanin, 250 mg/l aztreonam or 125 mg/l cefuroxime. If systemic signs of infection were present, patients were also given a single intravenous dose of either 400 mg teicoplanin plus 2 g aztreonam or 750 mg cefuroxime. In patients receiving teicoplanin plus aztreonam, a positive pre-treatment dialysate culture enabled the inappropriate agent to be stopped; if cultures were negative both agents were continued. Both groups were treated for a minimum of 10 days and for at least 5 days after clearing of the dialysate. Outcome was evaluated clinically and microbiologically to compare the efficacy of the 2 regimens. Safety and tolerance were also monitored. The trial continues. Fifteen patients receiving teicoplanin were selected for pharmacokinetic monitoring, with samples of early-morning dialysate and serum being taken pre-treatment and on days 1, 3, 5, 7, 10 and 20. Preliminary results suggest that the teicoplanin/aztreonam combination is safe and as effective as cefuroxime for the treatment of CAPD peritonitis. Teicoplanin concentrations in dialysate ranged from 1.2 to 9.9 mg/l, with some accumulation during the course of treatment but no evidence of excessive concentrations in dialysate or serum. Copyright © 2011 Elsevier B. V., Amsterdam. All Rights Reserved

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Abstract: This study was undertaken to evaluate: 1. The efficacy of netilmycin and vancomycin as combined first line antimicrobial regime, compared to cefuroxime, in the treatment of peritonitis. 2. To measure the levels of netilmycin and vancomycin in the serum and dialysate. 3. To report on the use of this combination over a one year period and compare it with that of cefuroxime used during the previous one year

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Abstract: Background: Peritonitis is a common complication of peritoneal dialysis (PD) and is associated with significant morbidity. Adequate treatment is essential to reduce morbidity and recurrence. Objectives: To evaluate the benefits and harms of treatments for PD-associated peritonitis. Search strategy: We searched the Cochrane Renal Group's specialised register, the Cochrane Central Register of Controlled Trials (CEN-

TRAL, in The Cochrane Library), MEDLINE, EMBASE and reference lists without language restriction. Date of search: February 2005 Selection criteria: All randomised controlled trials (RCTs) and quasi-RCTs assessing the treatment of peritonitis in peritoneal dialysis patients (adults and children) evaluating: administration of an antibiotic(s) by different routes (e.g. oral, intraperitoneal, intravenous); dose of an antibiotic agent(s); different schedules of administration of antimicrobial agents; comparisons of different regimens of antimicrobial agents; any other intervention including fibrinolytic agents, peritoneal lavage and early catheter removal were included. Data collection and analysis: Two authors extracted data on study quality and outcomes. Statistical analyses were performed using the random effects model and the dichotomous results were expressed as relative risk (RR) with 95% confidence intervals (CI) and continuous outcomes as mean difference (WMD) with 95% CI. Main results: We identified 36 studies (2089 patients): antimicrobial agents (30); urokinase (4), peritoneal lavage (1) intraperitoneal (IP) immunoglobulin (1). No superior antibiotic agent or combination of agents were identified. Primary response and relapse rates did not differ between IP glycopeptide-based regimens compared to first generation cephalosporin regimens, although glycopeptide regimens were more likely to achieve a complete cure (3 studies, 370 episodes: RR 1.66, 95% CI 1.01 to 3.58). For relapsing or persistent peritonitis, simultaneous catheter removal/replacement was superior to urokinase at reducing treatment failure rates (1 study, 37 patients: RR 2.35, 95% CI 1.13 to 4.91). Continuous IP and intermittent IP antibiotic dosing had similar treatment failure and relapse rates. IP antibiotics were superior to IV antibiotics in reducing treatment failure (1 study, 75 patients: RR 3.52, 95% CI 1.26 to 9.81). The methodological quality of most included studies was suboptimal and outcome definitions were often inconsistent. There were no RCTs regarding duration of antibiotics or timing of catheter removal. Authors' conclusions: Based on one study, IP administration of antibiotics is superior to IV dosing for treating PD peritonitis. Intermittent and continuous dosing of antibiotics are equally efficacious. There is no role shown for routine peritoneal lavage or use of urokinase. No interventions were found to be associated with significant harm. Copyright 2008 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd

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Abstract: BACKGROUND: Peritonitis frequently complicates peritoneal dialysis. Appropriate treatment is essential to reduce adverse outcomes. Available trial evidence about peritoneal dialysis peritonitis treatment was evaluated. SELECTION CRITERIA FOR STUDIES: The Cochrane CENTRAL Registry (2005 issue), MEDLINE (1966 to February 2006), EMBASE (1985 to February 2006), and reference lists were searched to identify randomized trials of treatments for patients with peritoneal dialysis peritonitis. INTERVENTIONS: Trials of antibiotics (comparisons of routes, agents, and dosing regimens), fibrinolytic agents, peritoneal lavage, and intraperitoneal immunoglobulin. OUTCOMES: Treatment failure, relapse, catheter removal, microbiological eradication, hospitalization,

all-cause mortality, and adverse reactions. RESULTS: 36 eligible trials were identified: 30 trials (1,800 patients) of antibiotics; 4 trials (229 patients) of urokinase; 1 trial of peritoneal lavage (36 patients); and 1 trial of intraperitoneal immunoglobulin (24 patients). No superior antimicrobial class was identified. In particular, glycopeptides and first-generation cephalosporins were equivalent (3 trials, 387 patients; relative risk [RR], 1.84; 95% confidence interval [CI], 0.95 to 3.58). Simultaneous catheter removal/replacement was superior to urokinase at decreasing treatment failures (1 trial, 37 patients; RR, 2.35; 95% CI, 1.13 to 4.91). Continuous and intermittent intraperitoneal antibiotic dosing were equivalent regarding treatment failure (4 trials, 338 patients; RR, 0.69; 95% CI, 0.37 to 1.30) and relapse (4 trials, 324 patients; RR, 0.93; 95% CI, 0.63 to 1.39). One trial showed superiority of intraperitoneal antibiotics over intravenous therapy. LIMITATIONS: The method quality of trials generally was suboptimal and outcome definitions were inconsistent. Small patient numbers led to inadequate power to show an effect. Interventions, such as optimal duration of antibiotic therapy, were not evaluated. CONCLUSIONS: Trials did not identify superior antibiotic regimens. Intermittent and continuous antibiotic dosing are equivalent treatment strategies. [References: 76]

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    Abstract: Cefepime is a cephalosporin with a broad spectrum of activity against most gram-positive and gram-negative pathogens. In this study, we attempted to compare the safety and efficacy of cefepime monotherapy against the potentially more toxic combination of vancomycin and netilmicin in the treatment of continuous ambulatory peritoneal dialysis (CAPD)-associated bacterial peritonitis. Eighty-one consecutive CAPD patients who presented with peritonitis from January 1, 1998, to June 30, 2000, were recruited for study. Patients were randomized to be administered either intraperitoneal (IP) cefepime, 1 g once daily (group A), or intravenous vancomycin and netilmicin at conventional doses (group B) for 10 days. Bacterial growth was obtained in 52 episodes (66%), and pathogens identified included gram-positive organisms (30 episodes; 38%), gram-negative organisms (14 episodes; 18%), mixed organisms (2 episodes; 2.5%), and fungus (6 episodes; 8%). Eight patients were excluded after randomization for various reasons (6 patients, fungal peritonitis; 2 patients, wrong diagnoses). Because of the relatively low peritonitis rate after the use of a disconnect system, the sample size of this study was relatively small, giving a power of 0.45. There were no significant differences in primary response rates and cure rates (no relapse >28 days after completion of antibiotic therapy) between both groups of patients (group A versus group B, 82% [32 of 39 patients] versus 85% [29 of 34 patients] and 72% [28 of 39 patients] versus 76% [26 of 34 patients], respectively; P = not significant). No significant side effect was encountered in either group. Total peritonitis-related hospitalizations were 84 patient-days (1, 7, 8, 11, 20, and 37 patient-days) and 115 patient-days (3, 6, 9, 14, 21, 21, and 41 patient-days), whereas total costs per patient cure were estimated to be US $1,039 and US $1,371 in groups A and B, respectively. We conclude that once-daily 1-g IP cefepime monotherapy

is a simple, safe, and cost-effective alternative to vancomycin and netilmicin therapy in the treatment of CAPD-associated bacterial peritonitis

Referanseliste for cholangitt (betennelse i galleveiene) eller cholecystitt (betennelse i galleblæren)

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   Abstract: One hundred and eighty-nine patients with acute cholecystitis or cholangitis requiring antibacterial therapy and surgery were randomly allocated in a prospective open study to receive either iv or oral pefloxacin (800 mg per day) or a combination of iv or oral ampicillin (4 g per day) and gentamicin (240 mg per day im). Ninety-two patients had to be withdrawn from the efficacy analysis, mainly because of negative baseline culture, but occasionally because of isolation of bacteria resistant to the study drugs. In the 97 evaluable patients (90 with cholecystitis and 7 with cholangitis) the clinical cure rates were excellent and similar for both groups: 49/50 (98%) for pefloxacin and 45/47 (95.7%) for the combination; the respective bacteriological success rates were 100% and 91.5%. Three patients in the pefloxacin group and six patients in the ampicillin-gentamicin group reported mild and transient side effects

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raphy. Twenty-three patients (6 males and 17 females) were evaluated. The mean (+/- the standard deviation) ofloxacin concentrations in serum, bile fluid, and gallbladder wall tissue were 2.9 +/- 2.4 and 6.0 +/- 7.9 micrograms/ml and 3.1 +/- 2.9 micrograms/g, respectively. The mean number of doses each patient received before surgery was 5.3 +/- 3.0, and the mean delta time (time elapsed between last antibiotic administration and when intraoperative samples were obtained) was 9.6 +/- 7.5 h. The mean tissue-to-serum ratio was 1.2 +/- 0.5, and the mean bile-to-serum ratio was 2.3 +/- 1.4. The mean serum ofloxacin concentrations were not statistically different from the concentrations in bile (P = 0.1) and tissue (P = 0.7) at the mean delta time. The study revealed that concentrations of ofloxacin in serum, bile fluid, and gallbladder tissue after intravenous dosing were adequate against susceptible organisms found in the biliary tract

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   Abstract: Forty patients with chronic cholecystitis or cholelithiasis were prospectively randomized for therapy with either ciprofloxacin or fleroxacin to study the penetration of these two agents into gallbladder tissue, plasma, and bile. Patients received a 3-day course of ciprofloxacin (500 mg twice a day) or fleroxacin (400 mg once daily) and were subdivided into four groups reflecting intraoperative sample collection at 4, 7, 14, and 25 to 26 h following the last quinolone dose. Mean concentrations in plasma for ciprofloxacin and fleroxacin at 4 and 25 to 26 h postdose were 2.5 and 10 micrograms/ml and 0.3 and 1.8 micrograms/ml, respectively. The concentrations of ciprofloxacin and fleroxacin in bile and gallbladder wall tissue at 25 to 26 h postdose were 4.5 and 8.6 micrograms/ml and 1.2 and 4.4 micrograms/ml, respectively. Both agents demonstrate rapid tissue penetration with persistence at levels appropriate for treatment of biliary pathogens

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   Abstract: In a prospective, randomized, controlled trial in 40 patients, intraperitoneal ciprofloxacin was shown to be as effective as the currently recommended regimen of intraperitoneal vancomycin and gentamicin for the treatment of CAPD peritonitis. There was one treatment failure in the ciprofloxacin arm and four in the comparative arm. A single drug regimen is preferred by patients. The intraperitoneal route of administration of ciprofloxacin therapy has advantages over the oral route

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Ref ID: 605
Abstract: Forty-six patients with cholangitis were randomized to receive therapy with mezlocillin sodium (24 patients) or a combination of ampicillin sodium--gentamicin sulfate (22 patients). The biliary concentration of mezlocillin was 112 times higher than that of ampicillin and 778 times higher than that of gentamicin. The ratio of the concentration in serum or bile over the minimum inhibitory concentration against aerobic gram-negative bacilli (therapeutic index) was higher for mezlocillin than for either ampicillin or gentamicin. Twenty (83%) of 24 patients were cured following mezlocillin therapy compared with 9 (41%) of 22 patients after ampicillin-gentamicin therapy. The 3 patients with superinfection were in the ampicillin-gentamicin arm of the study. Fewer toxic or adverse effects occurred in association with mezlocillin treatment than with ampicillin-gentamicin treatment. Mezlocillin therapy was more effective, less toxic, and less expensive than treatment with ampicillin and gentamicin for patients with cholangitis

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Abstract: Abdominal infections are life-threatening complications in neutropenic patients. Among these, neutropenic cholecystitis is relatively rare. Nevertheless, its actual relevance is only investigated by anecdotal reports. We present a consecutive retrospective series of nine patients over a 12-year period. We calculated a frequency of 0.4% among all neutropenic episodes in patients with acute leukemia or aggressive lymphoma undergoing myelosuppressive chemotherapy. Only three of these patients had gallstones. Four patients died during the course of cholecystitis but in none of them cholecystitis was the primary cause of death. Systematic review of the literature revealed 45 patients with neutropenic cholecystitis of whom 26.7% died. 2005 Elsevier Ltd. All rights reserved

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Abstract: OBJECTIVES: Antibiotics are frequently administered in acute cholecystitis for preoperative prophylaxis or postoperative treatment. The optimal timing, choice, and duration of antibiotics are unclear. METHODS: We conducted a retrospective review of all cases of acute cholecystitis between 1996 and 2001 at the American University of Beirut Medical Centre. A survey among general surgeons was also performed to describe the pattern of antibiotic prescribing in uncomplicated acute cholecystitis. A MEDLINE search for guidelines for antibiotic use in acute cholecystitis was conducted. RESULTS: The number of cases of acute cholecystitis was 79. The mean duration of postoperative anti-

biotic therapy was 5 days. There was no correlation between the severity of symptoms, gallbladder description, or positive gallbladder culture and the use of antibiotics postoperatively. Sixty five percent of interviewed surgeons would continue antibiotic therapy postoperatively for 3 or more days. Search of the medical literature failed to provide clear guidelines for antibiotic use in acute cholecystitis. CONCLUSIONS: The use of antibiotics in patients with acute cholecystitis is erratic and costly. Prospective studies are needed to better study the effectiveness of a short course of antibiotics in uncomplicated cases. The role of gallbladder culture in guiding antibiotic therapy should be defined as routine cultures add to the cost without evident benefit. [References: 28]

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    Abstract: INTRODUCTION: For the therapy of acute cholangitis complete biliary drainage and antibiotic therapy is needed. The aim of the current study was to compare intravenous therapy of acute cholangitis with Ceftriaxone or Levofloxacin in a prospective and randomized fashion. METHODS: Patients with biliary obstruction and clinical signs of infection received in addition to 1.5 g Metronidazole either 500 mg Levofloxacin/die or 2 g Ceftriaxone/die. Early on during ERCP, bile was aspirated via the cannulation catheter and cultured for bacteria under aerobic and anaerobic conditions. Minimal inhibitory concentrations of the respective antibiotics were determinate for each isolate. The clinical course was followed for at least 6 days with clinical and laboratory data. RESULTS: 60 patients with clinical signs of acute cholangitis were randomised. In 40 patients (66 %) biliary colonization with bacteria could be identified. In all bacterial species Levoflox-

acin showed significantly lower rates of in-vitro resistance as compared to Ceftriaxone. However, the percentage of patients with a clinical cure or significant improvement was the same in the two groups. CONCLUSIONS: The clinical effect of Levofloxacin and Ceftriaxone in patients with acute cholangitis showed no significant differences. Because of improved in-vitro efficiency, a calculated therapy with Levofloxacin might be advantageous

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Abstract: Cefepime is a new broad-spectrum cephalosporin with activity against Staphylococcus, Streptococcus, Pseudomonas, and the Enterobacteriaceae. The purpose of this study was to measure cefepime concentrations in plasma, peritoneal fluid, bile fluid and appendix tissue in patients undergoing elective cholecystectomy. Patients were randomly assigned to receive either cefepime, 2 g intravenously in phosphate buffer (IVPB) q 12 h or gentamicin 1.5 mg/kg IVPB q 8 h plus mezlocillin 4 g IVPB q 6 h. During surgery, gall bladder tissue, plasma, peritoneal fluid, and bile fluid samples were obtained at approximately the same time. Thirty-three patients had data acceptable for analysis. Values are given as mean +/- standard deviation. The mean delta time (defined as the time between the administration of cefepime and the time the samples were obtained) was 8.58 +/- 3.53 h. The values for plasma, peritoneal fluid, bile fluid, and gall bladder tissue concentrations were 7.63 +/- 14.17 micrograms/ml, 5.66 +/- 6.80 micrograms/ml, 15.51 +/- 16.94 micrograms/ml, and 5.36 +/- 6.57 micrograms/gm, respectively. The peritoneal fluid/plasma ratio was 2.10 +/- 2.33, the bile fluid/plasma ratio was 14.44 +/- 31.99, and the gall bladder tissue/plasma ratio was 1.44 +/- 1.82. There was a significant

correlation between peritoneal fluid and plasma concentration (r = 0.91, p less than 0.0005), and gall bladder tissue and plasma concentration (r = 0.90, p less than 0.0005). There was no correlation between bile fluid and plasma cefepime concentrations. The minimum inhibitory concentration (MIC) data from previous in vitro studies indicate that cefepime concentrations achieved in this patient population would be adequate against typical biliary tract pathogens.(ABSTRACT TRUNCATED AT 250 WORDS)

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Abstract: Consumer resources, patient version:
http://cks.library.nhs.uk/cholecystitis_acute#-366973

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Ref ID: 962
Abstract: One hundred consecutive patients with acute suppurative cholangitis were randomized in a prospective, controlled clinical trial to receive either ciprofloxacin (200 mg bd iv) or triple therapy comprising ceftazidime (1 g bd iv), ampicillin (500 mg qds iv) and metronidazole (500 mg tds iv); 46 and 44 patients in the ciprofloxacin and triple therapy groups respectively were suitable for inclusion in the analysis of efficacy. In two-thirds of the patients biliary obstruction was caused by ductal calculi and in one-third by malignant or benign strictures of the biliary tract. Bacteraemia was documented in 38% of patients in the ciprofloxacin group and in 34% of patients in the triple therapy group, while bile cultures were positive in 87% and 92% of patients in the ciprofloxacin and triple therapy groups respectively. Escherichia coli, Klebsiella spp. and Enterococcus spp. were the most common biliary isolates. Eighty-five per cent of evaluable patients in the ciprofloxacin group and 77% of those in the triple therapy group responded to therapy. The mean durations of fever, septicaemic shock and hospitalization were also similar in the two treatment groups. Six (13%) patients in the ciprofloxacin group and seven (16%) in the triple therapy group required urgent endoscopy or surgery for uncontrolled infection. Recurrence of fever after an initial response was documented in one (2%) patient receiving ciprofloxacin and in three (7%) patients receiving triple therapy. The incidences of mortality were 4% in the ciprofloxacin group and 2% in the triple therapy group. The results of this study suggest that ciprofloxacin alone is adequate empirical therapy for patients with cholangitis

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Ref ID: 586
Abstract: In a previous study of patients with acute cholecystitis, we demonstrated equal efficacy with a broad spectrum penicillin (piperacillin) and a penicillin plus aminoglycoside combination. Whether a single agent broad spectrum penicillin is adequate treatment for more severe infections, such as acute cholangitis, however, is still unclear.

We, therefore, conducted a three center, prospective, randomized trial to determine whether or not a broad spectrum penicillin alone is adequate therapy for patients with acute cholangitis. During a 36 month period, 96 patients with sepsis and biliary obstruction were randomly assigned to receive either piperacillin (n = 49) or ampicillin plus tobramycin (n = 47). The two groups receiving antibiotics were similar with respect to all clinical and laboratory parameters. The incidence of blood cultures with positive results (20 versus 21 per cent) and underlying malignant lesions (51 versus 62 per cent) was also similar between the two groups. The percentage of patients with a clinical cure or significant improvement was the same in the two groups (69 versus 70 per cent). However, there was a significant difference in the cure rate between patients with benign and malignant biliary obstructions (83 versus 59 per cent, p less than 0.01). No significant differences were noted between the two antibiotic groups with respect to drug toxicity, but patients with malignant conditions were more prone to antibiotic related toxicities (2 versus 19 per cent, p less than 0.05). These data suggest that outcome of treatment in patients with acute cholangitis is similar with either a broad spectrum penicillin or a penicillin plus aminoglycoside combination and is dependent upon the nature of the biliary obstruction

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    Abstract: Antibiotic treatment of biliary tract infections is widely accepted. An open, prospective, randomized, multicenter trial comparing cefepime (2 grams every 12 hours) with gentamicin (1.5 milligrams per kilograms every eight hours) plus mezlocillin (3 grams every four hours) for a minimum of five days was undertaken. Of the 149 patients enrolled, 120 were evaluable; 80 were randomized to receive cefepime and 40 were randomized to receive gentamicin plus mezlocillin (two to one randomization schedule). The diagnosis was acute cholecystitis in 101 patients and acute cholangitis in the remainder. There were no differences between the two treatment groups with regard to gender, age, disease, signs and symptoms, admitting temperature or laboratory values. All patients (100 percent) treated with gentamicin and mezlocillin were cured of the infection, as were 78 (97.5 percent) of the patients treated with cefepime (difference not significant). The incidence and spectrum of adverse events and complications were similar between the two groups (8.8 percent for cefepime versus 10 percent for gentamicin and mezlocillin). Our data show that the efficacy and safety of cefepime administered every 12 hours is equivalent to that of gentamicin and mezlocillin combination for treating patients with acute infections of the biliary tract. In addition, twice-daily administration of cefepime may be more cost-effective than the aminoglycoside-based combination

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    Ref ID: 532
    Abstract: In patients with acute cholecystitis, antibiotics are used as an adjunct to chole-

cystectomy to reduce the incidence of postoperative septic complications thought to be related to bactibilia. Combinations of penicillins, or cephalosporins or aminoglycosides, or both, are often used. Cefepime is a fourth-generation cephalosporin with excellent activity against gram-positive and gram-negative bacteria, including Pseudomonas species. It has a prolonged serum half-life, allowing twice-daily dosing, and is not nephrotoxic. This study was undertaken to determine whether or not cefepime was as effective as the combination of gentamicin and mezlocillin in patients with acute cholecystitis. One hundred and forty-nine patients were randomized, two to one, to receive cefepime or gentamicin and mezlocillin. Cefepime was given intravenously at 2 grams every 12 hours; gentamicin, 1.0 to 1.5 milligrams per kilograms every eight hours, and mezlocillin, 3 to 4 grams every four to six hours. All patients underwent cholecystectomy. Bile cultures were obtained, and concentrations of cefepime in blood, bile, peritoneal fluid and gallbladder were determined in a subset of patients. There were 56 evaluable cefepime-treated and 34 evaluable gentamicin and mezlocillin-treated patients. Bactibilia was present in 17 of 56 cefepime-treated patients (30.4 percent) and ten of 34 gentamicin and mezlocillin-treated patients (29.4 percent). Enterococci were recovered in six cefepime-treated patients. Clinical and bacteriologic responses were similar for the cefepime-treated and gentamicin and mezlocillin-treated groups, with one failure in each group, a wound infection in a patient receiving cefepime and a subhepatic abscess in a patients receiving gentamicin and mezlocillin. Other measures of outcome, such as the number of days of fever, days nothing by mouth, days of hospitalization and days of antibiotic therapy were similar in both groups. Cefepime, with every 12 hour dosing, achieved extremely high concentrations in all tissues assayed at the time of the operation, a mean of eight hours after administration. Adverse clinical events were similar in both treatment groups. Cefepime is as effective as gentamicin and mezlocillin in preventing septic complications after cholecystectomy for acute cholecystitis. Cefepime requires fewer doses, does not require drug monitoring, is not associated with nephrotoxicity and may therefore prove to be a cost-effective alternative to combination therapy that uses an aminoglycoside

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Ref ID: 854
Abstract: To evaluate the efficacy and safety of levofloxacin lactate injection in treating acute cholecystitis. A total of 60 patients with acute cholecystitis were divided into 2 random groups and treated with levofloxacin lactate 200mg bid (30 cases) or ceflriaxone sodium 2g bid (30 cases) when hospitalized until 2~3 days after operation. Results: The overall efficacy rate of LVLXL group and ceftraxone were 93.33% (28/30) and 90% (27/30); sensitivity rate of bacteria to levofloxacin and ceftriaxone were 87.88 (29/33) and 90. 91% (30/33); adverse drug events rate was 6.7% (2/30) and 6. 7% (2/30) respectively, no significant differences was noted between levofloxacin and ceftriaxone groups. All adverse events were generally mild and well tolerated. Conclusions: Levofloxacin lactate is effective and generally well tolerated in the treatment of acute

cholecystitis. Number of References 5. Copyright © 2011 Elsevier B. V., Amsterdam. All Rights Reserved

28. Zhou XS, Zou SQ, Dong JH, Wu WZ, Zhang YD, Zhang TL, et al. Comparison of efficacy between ceftriaxone and cefoperazone plus sulbactam in peri-operative treatment of acute suppurative cholangitis. Chung-Hua i Hsueh Tsa Chih [Chinese Medical Journal] 2004;84(22):1879-82.
Ref ID: 407
Abstract: OBJECTIVE: To compare the efficacy of ceftriaxone and that of cefoperazone plus sulbactam (sulperazon) in controlling infection, in scavenging bacteria from bile, and in their costs when treating acute suppurative cholangitis with choledochostomy. METHODS: Patients were randomly assigned to two groups: the ceftriaxone group (R-group, n=95) and sulperazon group (S-group, n=95). Before choledochostomy, both groups received one intravenous dose of the corresponding antibiotics: and 2 g ceftriaxnoe for the R-group, 2 g sulperazon, containing 1 g cefoperazone and 1 g sulbactam, for the S-group. After the operation, the patients in the R-group received ceftriaxone 2 g i.v. q.d.; the patients in the S-group received sulperazon 2 g i.v. b.i.d.. In addition, all patients in both groups received metronidazole 0.5 g daily before and after the operation. The efficacy was evaluated by efficiency in controlling infection and the persisting days of symptoms due to infection, fever and leukocytosis; the persisting days was compared using the life table method to calculate the "cumulative probability of persistence of symptoms (CPPS)". The two groups were also compared in regards to their biliary bacterial clearance rates and the costs directly attributable to the antibiotics. RESULTS: The efficiency in controlling infection was 98.9% (94/95) in both groups. However, the CPPS of the R-group decreased more rapidly than that of the S-group, Log-Rankchi2=6.7901, P=0.0092. Biliary bacterial clearance rate on post-operative day 3 was 72.0% (36/50) for the R-group, 41.3% (19/46) for the S-group, P=0.0037. Cost directly attributable to the antibiotics were (1788.29 +/- 518.46) yuan (RMB) for the R-group, and (3768.74 +/- 820.55) yuan for the S-group, F=395.51, P=0.0000. CONCLUSION: Both ceftriaxone and sulperazon are effective in treating acute suppurative cholangitis when used before and after choledochostomy. Ceftriaxone is superior in expediting symptom relief and bacterial clearance from bile, and is more cost-effective

Referanseliste for intra-abdominal infection

1. Results of the North American trial of piperacillin/tazobactam compared with clindamycin and gentamicin in the treatment of severe intra-abdominal infections. Investigators of the Piperacillin/Tazobactam Intra-abdominal Infection Study Group. European Journal of Surgery, Acta Chirurgica, Supplement 1994;J.(573):61-6.
Ref ID: 523
Abstract: A total of 192 men and 139 women aged 15 to 89 years with diagnosed intra-abdominal infection were randomised in a 2:1 ratio to treatment with either intravenous piperacillin/tazobactam (3 g/375 mg every six hours) or clindamycin (600 mg every six hours) plus gentamicin (2.5 mg to 5.0 mg/kg every eight to 12 hours) in a multicentre

trial. Of 147 evaluable patients with microbiologically confirmed infections, 104 were treated with piperacillin/tazobactam and 43 with clindamycin plus gentamicin. The diagnoses of perforated appendicitis (n = 79), other peritonitis (n = 32), cholecystitis/cholangitis (n = 18), intraabdominal abscess (n = 14), and diverticulitis (n = 3), were distributed proportionately between the two therapeutic groups. Ninety one of 104 patients (88%) in the piperacillin/tazobactam group and 33 of 43 patients (77%) in the clindamycin plus gentamicin group were considered cured or improved (p = 0.13). In the piperacillin/tazobactam group, 80 of 88 (91%) Bacteroides fragilis group organisms and 68 of 74 (92%) E coli isolates were eradicated; in the clindamycin plus gentamicin group, 21 of 25 (84%) Bacteroides fragilis group isolates and 23 of 30 (76%) E coli isolates were eradicated. Eleven evaluable patients in the piperacillin/tazobactam group had beta-lactamase-producing organisms that were resistant to piperacillin but susceptible to piperacillin/tazobactam; in 10 of these patients (91%) bacteria were eradicated. We conclude that piperacillin/tazobactam is an effective antimicrobial drug for monotherapy of intra-abdominal infections, with efficacy similar to or better than standard aminoglycoside/anti-anaerobe combinations

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4. Babinchak T, Ellis-Grosse E, Dartois N, Rose GM, Loh E. The efficacy and safety of tigecycline for the treatment of complicated intra-abdominal infections: Analysis of pooled clinical trial data. Clin Infect Dis 2005;41(5 SUPPL.):S354-S367.
   Ref ID: 189
   Abstract: This pooled analysis includes 2 phase 3, double-blind trials designed to evaluate the safety and efficacy of tigecycline, versus that of imipenem-cilastatin, in 1642 adults with complicated intra-abdominal infections. Patients were randomized to receive either tigecycline (initial dose of 100 mg, followed by 50 mg intravenously every 12 h) or imipenem-cilastatin (500/500 mg intravenously every 6 h) for 5-14 days. The primary end point was the clinical response at the test-of-cure visit (12-42 days after therapy) in the co-primary end point microbiologically evaluable and microbiological modified intent-to-treat populations. For the microbiologically evaluable group, clinical cure rates were 86.1% (441/512) for tigecycline, versus 86.2% (442/513) for imipenemcilastatin (95% confidence interval for the difference, -4.5% to 4.4%; P<.0001 for noninferiority). Clinical cure rates in the microbiological modified intent-to-treat population were 80.2% (506/631) for tigecycline, versus 81.5% (514/631) for imipenem-cilastatin (95% confidence interval for the difference, -5.8% to 3.2%; P<.0001 for noninferiority). Nausea (24.4% tigecycline, 19.0% imipenem-cilastatin [P = .01]), vomiting (19.2% tigecycline,

14.3% imipenem-cilastatin [P = .008]), and diarrhea (13.8% tigecycline, 13.2% imipenemcilastatin [P = .719]) were the most frequently reported adverse events. This pooled analysis demonstrates that tigecycline was efficacious and well tolerated in the treatment of patients with complicated intra-abdominal infections. 2005 by the Infectious Diseases Society of America. All rights reserved

5. Barie PS, Vogel SB, Dellinger EP, Rotstein OD, Solomkin JS, Yang JY, et al. A randomized, double-blind clinical trial comparing cefepime plus metronidazole with imipenem-cilastatin in the treatment of complicated intra-abdominal infections. Cefepime Intra-abdominal Infection Study Group. Arch Surg 1997;132(12):1294-302.
   Ref ID: 486
   Abstract: OBJECTIVE: To evaluate the safety and efficacy of cefepime hydrochloride plus metronidazole vs the combination of imipenem and cilastatin sodium in the treatment of complicated intra-abdominal infections in adult patients. DESIGN: Prospective, randomized, double-blind multicenter study. SETTING: University-affiliated hospitals in the United States and Canada. PATIENTS: Three hundred twenty-three patients with complicated intra-abdominal infections in whom an operative procedure or percutaneous drainage was required for diagnosis and management. INTERVENTION: Cefepime, 2 g, was administered intravenously every 12 hours (n= 164) in addition to metronidazole, 500 mg (or 7.5 mg/kg) intravenously every 6 hours. Imipenen-cilastatin sodium, 500 mg, was administered intravenously every 6 hours (n= 159). Surgical infection management was determined by the patients' surgeons. MAIN OUTCOME ASSESSMENTS: Clinical cure, defined as elimination of all signs and symptoms relevant to the original infection; and treatment failure, defined as persistence, increase or worsening of signs and symptoms resulting in an antibiotic change, requirement of an additional surgical procedure to cure the infection, or a wound infection with fever. RESULTS: Of the initial isolates, 84% were susceptible to cefepime and 92% were susceptible to imipenem-cilastatin. Among the 217 protocol-valid patients, those treated with cefepime+metronidizole were deemed clinical cures (88%) more frequently than were imipenem-cilastatin-treated patients (76%) (P=.02). Using multivariate analysis to adjust for identified clinical risk factors for an adverse outcome (severity of presenting illness, isolation of enterococcus, type of infection, and duration of prestudy hospitalization), there was a trend (P=.06) toward a higher cure rate favoring cefepime+metronidazole. Pathogens were eradicated in significantly (P=.01) more patients treated with combined cefepime and metronidazole (89%) than with imipenem-cilastatin (76%). CONCLUSION: The combination of cefepime plus metronidazole is safe and effective therapy for patients with severe intra-abdominal infections

6. Barie PS, Rotstein OD, Dellinger EP, Grasela TH, Walawander CA. The cost-effectiveness of cefepime plus metronidazole versus imipenem/cilastatin in the treatment of complicated intra-abdominal infection. Surgical Infections 2004;5(3):269-80.
   Ref ID: 1296
   Abstract: XST: <P>This is a critical structured abstract of an economic evaluation that meets the criteria for inclusion on NHS EED.</P> <P>Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical as-

sessment on the reliability of the study and the conclusions drawn.</P>
XHT: <P>The use of cefepime plus metronidazole, compared with imipenem/cilastatin, for the treatment of complicated intra-abdominal infections.</P>
XTI: <P>Treatment.</P>
XSI: <P>The objective of the study was to compare the cost-effectiveness of cefepime plus metronidazole compared with imipenem/cilastatin in the treatment of complicated intra-abdominal infections. The perspective adopted in the study was not reported.</P>
XEC: <P>Cost-effectiveness analysis.</P>
XPA: <P>The study population comprised hospitalised patients (>= 18 years of age) who had a preoperative diagnosis of complicated intra-abdominal infection, or a postoperative diagnosis of abscess or peritonitis (the "intent-to-treat" population, n=323). Patients were excluded from the original study if any of the following conditions applied:</P> <P>renal insufficiency (creatinine clearance <11 mL/minute);</P> <P>total leukocyte count less than 2,000/mm3;</P> <P>probable need for more than 14 days of antibacterial therapy;</P> <P>an Acute Physiology and Chronic Health Evaluation (APACHE) II score greater than 30;</P> <P>gynaecologic infection;</P> <P>non-perforated appendicitis;</P> <P>traumatic hollow viscus perforation of less than 12 hours' duration;</P> <P>perforated gastroduodenal ulcer of less than 24 hours' duration;</P> <P>history of seizures; or</P> <P>hypersensitivity to penicillins or cephalosporins.</P> <P>The cost-effectiveness analyses were performed for three populations. More specifically, the total population, patients having an APACHE II score of more than 15, and those having an APACHE II score of 15 or less.</P>
XSG: <P>The setting was tertiary care. The economic study was carried out in university-affiliated hospitals in the USA and Canada.</P>
XDD: <P>The data on clinical effectiveness and use of health resources were collected during the conduct of a randomised, double-blind, multi-centre clinical trial, which was published in 1996. The price year was 1996.</P>
XSS: <P>The effectiveness data were derived from a single study.</P>
XMO: <P>A decision tree model was used to estimate the expected costs of treatment based on the probability of the various patient outcomes and associated costs.</P>
XSD: <P>The study was a randomised, double-blind, multi-centre, clinical trial. The reader should consult the parent study for further details (Barie et al. 1997).</P>
XMB: <P>The measure of health benefits used was the cure rate.</P>
XDR: <P>The direct costs included the treatment costs associated with each treatment strategy. These were the length of hospital stay stratified by the total number of days in the ICU and ward, the number, type and cost of post-treatment surgical procedures, the cost of study drugs and the cost of non-study antibiotics.</P> <P>The quantities and the costs were analysed separately, with both being estimated from actual data. The average wholesale price for the antibiotics was obtained from the 1996 Red Book. The costs used for a day in an ICU or a ward were based on written communication with Millard Fillmore Health Systems in Buffalo, New York, for 1996. The costs for post-treatment surgical procedures performed in an operating room or a procedure room were from the New York-Presbyterian Hospital - Weill Cornell Medical Centre. Professional fees for surgeons or radiologists were not considered. The costs were not discounted because of

the short duration of the treatment.</P>
XCO: The indirect costs were not included
XCU: <P>US dollars ($).</P>
XSY: <P>Sensitivity analyses were carried out to test the robustness of the results over a range of plausible values for the specified resource costs and the outcome probabilities included in the decision tree. Specifically, sensitivity analyses were used to determine decision thresholds (i.e. the values at which the treatment alternatives produced equal cost-effectiveness ratios). One-way sensitivity analyses were performed on the cost of study antibiotics, the ICU bed cost, the ward bed cost, the infection cure rate, the percentage of patients requiring post-treatment surgical procedures, and the percentage of patients having an APACHE II score greater than 15.</P>
XEB: <P>For the total population, the cure rate was 0.817 in the cefepime group and 0.761 in the imipenem group.</P> <P>For severely ill patients (APACHE II score >15), the cure rate was 0.846 in the cefepime group and 0.360 in the imipenem group.</P> <P>For less severely ill patients (APACHE II score <=15), the cure rate was 0.815 in the cefepime group and 0.836 in the imipenem group.</P>
XCR: <P>Comparing cefepime plus metronidazole with imipenem/cilastatin, the expected cost of patient care was $8,218 (cefapime-metronidazole) versus $10,414 (imipenem/cilastatin). For severely ill patients (APACHE II score >15), the expected cost was $12,962 versus $23,153. For less severely ill patients (APACHE II score <=15), the expected cost was $7,810 versus $8,038.</P>
XCB: <P>Cost-effectiveness ratios were calculated in order to combine the costs and benefits of the treatment strategies.</P> <P>Comparing cefepime plus metronidazole with imipenem/cilastatin, the cost-effectiveness ratio per cure was $10,059 (cefepime-metronidazole) versus $13,685 (imipenem/cilastatin). For severely ill patients (APACHE II score >15), the cost-effectiveness ratio per cure was $15,321 versus $64,313. For less severely ill patients (APACHE II score <=15), the cost-effectiveness ratio per cure was $9,853 versus $9,615.</P> <P>An incremental analysis was performed in less severely ill patients.</P> <P>The incremental cost-effectiveness ratio of cefepime plus metronidazole over imipenem/cilastatin was $10,875/cure. An incremental cost-effectiveness ratio was not calculated in the total population and in severely ill patients, because in both populations the cost profile was lower and the effectiveness profile was higher in the cefepime plus metronidazole treatment arm than in the imipenem/cilastatin treatment arm, as determined from the decision analysis model.</P> <P>The sensitivity analyses performed on data for patients having an APACHE II score greater than 15 showed that the cost-effectiveness results were robust across a wide range of values. The sensitivity analyses performed on data for patients having an APACHE II score of 15 or less showed that, with the exception of re-operation rates, nominal changes in the initial values used in the decision tree would change the cost-effectiveness ratios for the two regimens.</P>
XAU: <P>Cefepime plus metronidazole was more cost-effective than imipenem/cilastatin in the treatment of complicated intra-abdominal infections, primarily because of it involved fewer post-treatment surgical procedures and shorter hospital stays. The primary advantage accrued to severely ill patients who had an APACHE II score greater than

15.</P>
XIM: <P>This study implied that cefepime plus metronidazole is an attractive regimen for the treatment of complicated intra-abdominal infections, particularly in critically ill patients. The authors suggested that institutions should collect data on patient outcomes and outcomes specific to their organisation, and then incorporate these data into the cost-effectiveness analysis so that system-wide costs associated with treating infectious diseases can be considered.</P>
XOP: <P>Mazuski JE, Sawyer RG, Nathens AB, et al. The Surgical Infection Society guidelines on antimicrobial therapy for intra-abdominal infections: evidence for the recommendations. Surgical Infections 2002;3:175-233.</P> <P>Thornsberry C, Yee YC. Comparative activity of eight antimicrobial agents against clinical bacterial isolates from the United States, measured by two methods. American Journal of Medicine 1996;100 Suppl 6A:265-385.</P> <P>Barie PS, Vogel SB, Delliner EP, et al. A randomized, double-blind clinical trial comparing cefepime plus metronidazole to imipenem/cilastatin in the treatment of complicated intra-abdominal infections. Archives of Surgery 1997;132:1294-302.</P> <P>De Lissovoy G, Elixhauser A, Luce B, et al. Cost analysis of imipenem-cilastatin versus clindamycin with tobramycin in the treatment of acute intraabdominal infection. Pharmacoeconomics 1993;4:203-14.</P> <P>Walters DJ, Solomkin JS, Paladino JA. Cost effectiveness of ciprofloxacin plus metronidazole versus imipenem-cilastatin in the treatment of intraabdominal infections. Pharmacoeconomics 1999;16:551-61.</P>
CO1: United States
XFU: <P>Supported in part by a grant from Bristol-Myers Squibb Pharmaceutical Research Institute.</P>

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Ref ID: 419
Abstract: We performed a retrospective, comparative study to evaluate efficacy, safety and economic outcomes of empiric cefoperazone/sulbactam monotherapy compared with the meropenem, imipenem/cilastatine and combination of cefepime plus metroindazol in patients with intra-abdominal infection. A total of 468 patients diagnosed with intra-abdominal abscess, peritonitis, pancreatitis were included in the study (the severity of infection according to scale APACHE II was less than 15). Patients were randomized to be treated with either 500 mg meropemen i.v. every 8 hours or 500 mg imipenem/cilastatine i.v. every 8 hours or 2 g cefepime i.v. every 12 hours plus 500 mg metronidazol twice daily or cefoperazone/sulbactam 2 g daily administered every 12 hours. Overall positive clinical responses (cure or improvement) were achieved at the end of treatment for 87.5 patients in meropenem group, 86.6% in the imipenem/cilastatin group, 85.3% in the cefepime group and 86.8% in cefoperazone/sulbactam group. Total cost of the treatment per 100 patients with intra-abdominal infections for cefoperazone/sulbactam was 1957031 roubles, for combinations of cefepime with metronidazol--2497815 roubles. For carbapenem group cost achieved for meropenem--3085291 rub., for imipenem/cilastatin-

-2653388 roubles. Rate "cost-effectiveness" in total: 784.47$ for cefepime, and 834.39$ for imipenem/cilastatine, 970.21$ for meropenem and 615.4$ for cefoperazone/sulbactam. The most expensive treatment was considered to be with meropenem and imipenem/cilastatine, main share is determined by initial cost of preparations. Less expensive was treatment by cefoperazone/sulbactam with cefepime and by metronidazol

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9. Chandra A, Dhar P, Dharap S, Goel A, Gupta R, Hardikar JV, et al. Cefoperazone-sulbactam for treatment of intra-abdominal infections: results from a randomized, parallel group study in India. Surgical Infections 2008;9(3):367-76.
   Ref ID: 354
   Abstract: BACKGROUND: Combinations of a third-generation cephalosporin and metronidazole, with or without an aminoglycoside, often are used for the treatment of intra-abdominal infections in surgical settings. Simpler regimens that preserve an adequate spectrum of coverage, but allow easier administration and have fewer side effects, may be a more desirable option. METHODS: This randomized, open-label, active comparator study evaluated the effectiveness (non-inferiority hypothesis) of the beta-lactam/beta-lactamase inhibitor combination cefoperazone-sulbactam (2-8 g/day), compared with ceftazidime (2-6 g/day)-amikacin (15 mg/kg/day)-metronidazole (500 mg three times daily) in 154 and 152 subjects, respectively, having intra-abdominal infections. The study was conducted at 17 centers in India. RESULTS: Non-inferiority of cefoperazone-sulbactam (91.9%) compared with ceftazidime-amikacin-metronidazole (81.8%) was demonstrated for continued resolution of clinical signs and symptoms at the 30-day follow-up (primary endpoint) with a treatment difference of 10.1% (95% confidence interval 2.1%, 18.1%; pre-defined non-inferiority limit > -12.5%). Superiority of cefoperazone-sulbactam also was demonstrated for this endpoint, with significantly more subjects achieving continued resolution at the 30-day follow-up than in the comparator group (p = 0.015). On microbiologic outcomes, cefoperazone-sulbactam had higher success rates than ceftazidime-amikacin-metronidazole (92.9% vs. 80.0%). The pathogens (202 isolated) isolated most commonly were Escherichia coli (38.6%) and Klebsiella spp. (12.9%). The incidence of treatment-related adverse events was 6.5% and 16.4% in the cefoperazone-sulbactam and ceftazidime-amikacin-metronidazole groups, respectively, with more discontinuations due to treatment-related adverse events in the comparator arm (3.2% vs. 9.9%). CONCLUSION: Empirical cefoperazone-sulbactam monotherapy could be a useful adjunct to surgical intervention for intra-abdominal infections

10. Chen Z, Wu J, Zhang Y, Wei J, Leng X, Bi J, et al. Efficacy and safety of tigecycline monotherapy vs. imipenem/cilastatin in Chinese patients with complicated intra-abdominal infections: a randomized controlled trial. BMC Infectious Diseases 2010;10:217.
    Ref ID: 330

Abstract: BACKGROUND: Tigecycline, a first-in-class broad-spectrum glycylcycline antibiotic, has broad-spectrum in vitro activity against bacteria commonly encountered in complicated intra-abdominal infections (cIAIs), including aerobic and facultative Gram-positive and Gram-negative bacteria and anaerobic bacteria. In the current trial, tigecycline was evaluated for safety and efficacy vs. imipenem/cilastatin in hospitalized Chinese patients with cIAIs. METHODS: In this phase 3, multicenter, open-label study, patients were randomly assigned to receive IV tigecycline or imipenem/cilastatin for </=2 weeks. The primary efficacy endpoints were clinical response at the test-of-cure visit (12-37 days after therapy) for the microbiologic modified intent-to-treat and microbiologically evaluable populations. Because the study was not powered to demonstrate noninferiority between tigecycline and imipenem/cilastatin, no formal statistical analysis was performed. Two-sided 95% confidence intervals (CIs) were calculated for the response rates in each treatment group and for differences between treatment groups for descriptive purposes. RESULTS: One hundred ninety-nine patients received >/=1 dose of study drug and comprised the modified intent-to-treat population. In the microbiologically evaluable population, 86.5% (45 of 52) of tigecycline- and 97.9% (47 of 48) of imipenem/cilastatin-treated patients were cured at the test-of-cure assessment (12-37 days after therapy); in the microbiologic modified intent-to-treat population, cure rates were 81.7% (49 of 60) and 90.9% (50 of 55), respectively. The overall incidence of treatment-emergent adverse events was 80.4% for tigecycline vs. 53.9% after imipenem/cilastatin therapy (P < 0.001), primarily due to gastrointestinal-related events, especially nausea (21.6% vs. 3.9%; P < 0.001) and vomiting (12.4% vs. 2.0%; P = 0.005). CONCLUSIONS: Clinical cure rates for tigecycline were consistent with those found in global cIAI studies. The overall safety profile was also consistent with that observed in global studies of tigecycline for treatment of cIAI, as well as that observed in analyses of Chinese patients in those studies; no novel trends were observed. TRIAL REGISTRATION: ClinicalTrials.gov NCT00136201

11. Christou NV, Turgeon P, Wassef R, Rotstein O, Bohnen J, Potvin M. Management of intra-abdominal infections. The case for intraoperative cultures and comprehensive broad-spectrum antibiotic coverage. The Canadian Intra-abdominal Infection Study Group. Arch Surg 1996;131(11):1193-201.
Ref ID: 497
Abstract: OBJECTIVE: To test the hypothesis that comprehensive broad-spectrum empirical antimicrobial therapy is superior to limited-spectrum empirical antimicrobial therapy in intra-abdominal infections. DESIGN: Prospective, randomized, double-blinded study. SETTING: University-affiliated hospitals in Canada. PATIENTS: Two hundred thirteen patients with intra-abdominal infections and planned operative or percutaneous drainage. INTERVENTION: Limited-spectrum empirical antimicrobial therapy consisted of cefoxitin sodium, 2 g, intravenously, every 6 hours (n = 109). Comprehensive broad-spectrum empirical antimicrobial therapy consisted of a combination of imipenem and cilastatin sodium, 500 mg, intravenously, every 6 hours (n = 104). MAIN OUTCOME MEASURES: Failure to cure the intra-abdominal infection (persistence of infection or death). RESULTS: Of initial isolates, 98% were sensitive to imipenem plus cilastin so-

dium compared with 72% for cefoxitin. No difference was found in the failure rate between treatment groups. Among various reasons for failure (including technical), 12 of 80 patients in the limited-spectrum empirical antimicrobial therapy group had resistant organisms at a second intervention compared with 1 of 74 in the comprehensive broad-spectrum empirical antimicrobial therapy group (P < .003, chi 2). One death in the limited-spectrum empirical antimicrobial therapy group was due to autopsy-proved disseminated Pseudomonas aeruginosa (blood, peritoneum, lung, and pleural fluid) that was resistant to cefoxitin, and the other was associated with peritonitis due to cefoxitin-resistant Enterobacter cloacae. One death in the comprehensive broad-spectrum empirical antimicrobial therapy group was associated with peritonitis from Clostridium perfringens that was sensitive to imipenem plus cilastin sodium, and the other was associated with peritonitis from Pseudomonas aeruginosa that was resistant to imipenem plus cilastin sodium. CONCLUSION: Treatment failure of intra-abdominal infection may be due, in part, to the presence of resistant pathogens at the site of infection. Therefore, routine culture of these sites seems worthwhile and empirical therapy should be as comprehensive as possible and should cover all potential pathogens

12. Colardyn F, Faulkner KL. Intravenous meropenem versus imipenem/cilastatin in the treatment of serious bacterial infections in hospitalized patients. Meropenem Serious Infection Study Group. J Antimicrob Chemother 1996;38(3):523-37.
    Ref ID: 498
    Abstract: Meropenem was compared with imipenem/cilastatin for the treatment of serious bacterial infections in a randomized, prospective multicentre study. Both study drugs were given intravenously 1 g every 8 h and no other antimicrobial agents were permitted concomitantly. Of the 204 patients enrolled, the treatment of 177 was evaluable for clinical efficacy and 115 for bacteriological efficacy. In the clinically evaluable treatment population, 75 (83%) of the 90 patients in the meropenem group and 78 (90%) of the 87 in the imipenem/cilastatin group had a single site of infection whereas the remainder had two or more sites of infection. Infections of the lower respiratory tract and peritoneal cavity predominated accounting for 95 and 75 cases respectively. Other infections included skin and soft tissue infections, complicated urinary tract infections, bacteraemia and a case of meningitis treated with meropenem and one of mediastinitis treated with imipenem/cilastatin. One hundred and nineteen (67%) patients were in an intensive care unit, 105 (59%) were receiving assisted ventilation and 93 (53%) of the patients had failed previous antibiotic therapy. One hundred and ten organisms were identified as pathogens in the meropenem group and 109 in the imipenem/cilastatin group. Overall, treatment with meropenem was clinically successful in 68 (76%) of 90 cases and imipenem/cilastatin in 67 (77%) of 87 cases and the corresponding eradication rates of bacteria were 85 of 110 (77%) and 90 of 109 (83%) respectively. Superinfections due to resistant bacteria occurred in two patients treated with meropenem and three cases given imipenem/cilastatin. No statistically significant differences in the clinical or bacteriological outcome were observed between the treatment groups for any of the infection sites analysed. Both drugs were well tolerated with adverse events considered to be related to therapy being recorded for 10 (9%) of 106 patients treated with meropenem and

12 (12%) of 98 of those who had been given imipenem/cilastatin. Empirical monotherapy with meropenem was therefore as effective and as well tolerated as that with imipenem/cilastatin for the treatment of serious bacterial infections

13. de MS, VandenBergh MF, Buijk SL, Bruining HA, Van VA, Kluytmans JA, et al. Bioavailability of ciprofloxacin after multiple enteral and intravenous doses in ICU patients with severe gram-negative intra-abdominal infections. Intensive Care Med 1998;24(4):343-6.
Ref ID: 902
Abstract: BACKGROUND: Few data are available on the pharmacokinetics of multiple enteral dosing of ciprofloxacin in critically ill intensive care patients and none for those with severe gram-negative intra-abdominal infections (GNIAI). OBJECTIVE: To determine the bioavailability of enteral ciprofloxacin in tube-fed intensive care patients with severe GNIAI. DESIGN: A randomized crossover study. SETTING: University-based medical center. PATIENTS: 5 critically ill intensive care patients with GNIAI and an estimated creatinine clearance > 25 ml/ min who received continuous tube feeding. INTERVENTIONS: Multiple doses of enteral 750 mg b.i.d. versus 400 mg b.i.d.i.v. ciprofloxacin. MEASUREMENTS: The calculated 12-h area under the serum concentration versus time curve after 750 mg b.i.d. enteral dosing was equivalent to that after 400 mg b.i.d.i.v. The mean bioavailability of enteral dosing was 53.1% [95% confidence interval (CI) 43.5-62.8]. In seven additional patients, the mean serum steady-state concentration at 2 h after enteral administration was 3.9 microg/ml (95% CI 1.9-5.9), not significantly different from that found in the crossover study (p = 0.4). CONCLUSIONS: In tube-fed intensive care patients with severe GNIAI, the bioavailability of enteral ciprofloxacin is adequate

14. De WJ, Tellado J, Alder J, Reimnitz P, Jensen M, Hampel B, et al. Efficacy and safety of moxifloxacin vs. ertapenem in complicated intra-abdominal infections: Results of the PROMISE study. Clinical Microbiology and Infection 2010;Conference: 20th ECCMID Vienna Austria. Conference Start: 20100410 Conference End: 20100413. Conference: 20th ECCMID Vienna Austria. Conference Start: 20100410 Conference End: 20100413. Conference Publication:(var.pagings):S449.
Ref ID: 60
Abstract: Introduction: Source control and initiation of optimal antimicrobial therapy are the cornerstones of the management of complicated intra-abdominal infections (cIAIs). Moxifloxacin (MXF) is an important treatment option for cIAI as it has proven clinical efficacy, and activity against the vast majority of causative organisms. The current study was carried out to compare the efficacy and safety of MXF and ertapenem (ERTA) in the treatment of patients with cIAI. Methods: PROMISE was a prospective, randomised, double-dummy, double-blind, multinational trial in patients with cIAIs. Patients were treated for 5-14 days with MXF, 400 mg IV qd, or ERTA, 1g IV qd. The primary efficacy variable was clinical response 21-28 days after the end of therapy. Non-inferiority of MXF was demonstrated if the lower limit of the 95% confidence interval (CI) was above -10%. Results: Of 804 patients randomised (two-thirds from European countries), 798 were valid for the ITT/safety analyses (MXF 408, ERTA 390). Demographics and baseline characteristics were similar in both treatment arms. In the PP population (MXF 352, ERTA 347), the mean (+/-SD) APACHE II score was 6.8 (+/-4.4). The mean (+/-SD)

POSSUM (35.1[+/-7.6]) and Mannheim Peritonitis Index (19.0[+/-7.2]) scores demonstrate that patients with severe peritonitis were included. The most common cIAI diagnosis was diffuse, secondary peritonitis (MXF 181, ERTA 185). For the primary efficacy variable, MXF was non-inferior to ERTA (Table presented). This included good efficacy in the more seriously ill patients (APACHE II >10: MXF 55/66, 83.3%; ERTA 53/62, 85.5%; 95% CI -14.8,10.5), patients with diffuse, secondary peritonitis (MXF 162/181, 89.5%; ERTA 174/185, 94.1%; 95%CI -9.2,1.9), and patients with non-appendicitis (MXF 160/180, 88.9%; ERTA 157/171, 91.8%; 95% CI -8.8,3.5). Good bacteriological efficacy was also seen overall (Table presented) and in patients with polymicrobial infections (MBV population: MXF 212/250, 84.8%; ERTA 205/231, 88.7%). Similar numbers of patients in both arms experienced drug-related treatment-emergent adverse events (ITT/safety population: MXF 77/408, 18.9%; ERTA 74/390, 19.0%). Conclusions: MXF, the only fluoroquinolone currently marketed for monotherapy of cIAI, was as effective and well tolerated as ERTA. This included good efficacy in the most severely ill patients

15. Dela Pena AS, Asperger W, Kockerling F, Raz R, Kafka R, Warren B, et al. Efficacy and safety of ertapenem versus piperacillin-tazobactam for the treatment of intra-abdominal infections requiring surgical intervention. J Gastrointest Surg 2006;10(4):567-74.
Ref ID: 383
Abstract: Complicated intra-abdominal infections usually mandate prompt surgical intervention supplemented by appropriate antimicrobial therapy. The aim of this study was to demonstrate that ertapenem was not inferior to piperacillin-tazobactam for the treatment of community-acquired intra-abdominal infections. A randomized open-label active-comparator clinical trial was conducted at 48 medical centers on four continents from December 2001 to February 2003. Adult patients with intra-abdominal infections requiring surgery were randomized to receive either ertapenem 1 g daily or piperacillin/tazobactam 13.5 g daily in 3-4 divided doses. The primary analysis of efficacy was the clinical response rate in clinically and microbiologically evaluable patients at the test-of-cure assessment 2 weeks after completion of therapy. All treated patients were included in the safety analysis. Patient demographics, disease characteristics, and treatment duration in both treatment groups were generally similar. The most commonly isolated pathogens at baseline were E coli (greater than 50% of cases in each group) and B fragilis (approximately 9%). Favorable clinical response rates were 107/119 (90%) for ertapenem recipients and 107/114 (94%) for piperacillin/tazobactam recipients. The frequencies of drug-related adverse events, most commonly diarrhea and elevated serum alanine aminotransferase levels, were similar in both treatment groups. Six of 180 ertapenem recipients (3%) and two of 190 piperacillin/tazobactam recipients (1%) had serious drug-related adverse experiences. In this study, ertapenem and piperacillin/tazobactam were comparably safe and effective treatments for adult patients with complicated intra-abdominal infections

16. Falagas ME, Peppas G, Makris GC, Karageorgopoulos DE, Matthaiou DK. Meta-analysis: ertapenem for complicated intra-abdominal infections. Aliment Pharmacol Ther 2008;27(10):919-31.
Ref ID: 1258

Abstract: XST: <P>This record is a structured abstract produced by CRD. The original has met a set of quality criteria. Since September 1996 abstracts have been sent to authors for comment. Additional factual information is incorporated into the record. Noted as [A:....].</P>
XAO: <P>To evaluate the effectiveness and safety of ertapenem in patients with complicated intra-abdominal infections (cIAIs).</P>
XSS: <P>PubMed, Cochrane Central Register of Controlled Trials and Scopus were searched for studies published in English, French, German, Spanish, Italian and Greek. Search terms were reported, but search dates were not. Reference lists of eligible studies were hand-searched.</P>
XVC: <P>Study validity was assessed using the Jadad score (use of adequate randomisation, blinding and reporting of withdrawals). The maximum possible score was 5 points. The authors did not state how the validity assessment was performed.</P>
XDE: <P>Two reviewers independently extracted outcome data for the modified intention-to-treat population (patients who met disease definition criteria and received allocated treatment). Disagreements were resolved by discussion among all review authors.</P>
XRR: <P>Seven RCTs were included (n= 5,200). Four RCTs were double-blinded. Four RCTs scored at least 4 points on the Jadad score. </P> <P>Fixed-effect models were used for all analyses, implying that no significant heterogeneity was found. </P> <P>For adults with cIAIs, there was no statistically significant difference between ertapenem and other antibiotics in clinical success or clinical adverse for all patients, for other populations of interest or for analyses restricted to double-blind RCTs. </P> <P>For patients with cIAIs, ertapenem was associated with significantly more laboratory adverse events than other antibiotics; OR 1.73 (95% CI: 1.14, 2.61; four RCTs). None were considered serious. There was no statistically significant difference in laboratory adverse events between ertapenem and other antibiotics for other populations of interest. </P> <P>There were no significant differences between ertapenem and other antibiotics for secondary outcomes. </P>
XCL: <P>Ertapenem is as effective and safe as other antimicrobials for the treatment of complicated intra-abdominal infections. However, evidence was limited to patients with mild-to-moderate infections caused by one or more susceptible pathogens. </P>
XCM: <P>The review question was clearly stated and inclusion criteria were defined. Several relevant sources were searched, but no attempts were made to minimise publication bias. Publications in several languages were eligible, but two potentially relevant studies in non-eligible languages were excluded. Appropriate methods were used to minimise reviewer error and bias during the selection of studies and data extraction, but it was not stated if similar methods were used for the validity assessment. Only RCTs were included and validity was assessed, although only the aggregated score was reported. Appropriate methods were used for the meta-analyses, heterogeneity was assessed and various subgroup analyses conducted. Apart from the exclusion of two foreign-language studies, t<FONT style="BACKGROUND-COLOR: #ffffff">he review was generally well-conducted and the authors' conclusions were likely to be reliable.</FONT></P> <P><FONT style="BACKGROUND-COLOR: #ffffff">All of the in-

cluded studies were conducted by the manufacturer of ertapenem. </FONT></P>
XIM: <P>Practice: the authors stated that in clinical practice the susceptibility of pathogens causing cIAIs to empirically administered ertapenem should be confirmed microbiologically. </P> <P>Research: the authors did not state any implications for research. </P>
XFU: <P>Funding interest reported as none.</P>

17. Falagas ME, Matthaiou DK, Bliziotis IA. Systematic review: fluoroquinolones for the treatment of intra-abdominal surgical infections. Aliment Pharmacol Ther 2007;25(2):123-31.
Ref ID: 378
Abstract: BACKGROUND: Intra-abdominal infections result in substantial morbidity and mortality. Fluoroquinolones are among the various regimens that are used for the treatment of these infections. AIM: To evaluate the available data from laboratory and clinical studies regarding the use of fluoroquinolones for the treatment of patients with intra-abdominal infections. METHODS: We searched for relevant laboratory and clinical studies in the PubMed and the Cochrane Library databases. RESULTS: Good pharmacokinetic and pharmacodynamic properties of fluoroquinolones in inflamed abdominal tissue are reported in several laboratory studies. In six prospective non-randomized clinical studies of patients with intra-abdominal infections, the clinical success achieved with the use of fluoroquinolones ranged from 77% to 94%. In 10 randomized-controlled trials fluoroquinolone-based regimens were compared with other commonly used (mainly beta-lactam-based) regimens. Clinical success, bacterial eradication, withdrawal because of toxicity and mortality were similar between the compared treatment arms except from two randomized-controlled trials, in which clinical success was statistically higher in the fluoroquinolone treatment arm. CONCLUSIONS: Fluoroquinolones seem to be an effective and relatively safe option for the treatment of patients with intra-abdominal infections. [References: 56]

18. Fink MP. Antibiotic therapy of intra-abdominal sepsis in the elderly: experience with ticarcillin and clavulanic acid. Surg Gynecol Obstet 1991;172:Suppl-41.
Ref ID: 571
Abstract: Age is a major factor in determining the outcome for older patients with intra-abdominal sepsis. Poor outcome in these patients may be related to a number of physiologic and immunologic changes associated with aging. The treatment of intra-abdominal sepsis can itself pose special risks for the elderly. Standard regimens containing aminoglycosides have a substantial risk of nephrotoxicity, which is magnified in elderly patients. Alternatives to standard aminoglycoside-containing regimens, therefore, are desirable. Most intra-abdominal infections involve multiple pathogens, usually both aerobic and anaerobic. The polymicrobial nature of intra-abdominal sepsis mandates antimicrobial chemotherapy effective against a broad range of organisms. In the past several years, a host of new antibiotics have been introduced that used alone or in combination with other drugs has the potential of safely avoiding aminoglycosides in many patients with intra-abdominal sepsis. One such agent, ticarcillin with clavulanate potassium, is active against a wide spectrum of aerobic and anaerobic pathogens. In a prospective,

randomized, open label trial, ticarcillin and clavulanate was compared with gentamicin and clindamycin. Although the sample size was too small to allow meaningful statistical comparisons of efficacy and safety, both regimens were effective and well tolerated. In general, prolonged administration of aminoglycosides is rarely indicated for the treatment of intra-abdominal sepsis in the elderly, although initial empiric use of aminoglycosides may sometimes be warranted

19. Fomin P, Koalov S, Cooper A, Babinchak T, Dartois N, De VN, et al. The efficacy and safety of tigecycline for the treatment of complicated intra-adominal infections - The European experience. J Chemother 2008;20(SUPPL. 1):12-9.
Ref ID: 90
Abstract: The polymicrobial nature of complicated intra-abdominal infections makes these infections particularly challenging to treat. The initial selection of antimicrobial therapy is therefore extremely important. Inappropriate empiric antimicrobial therapy has been shown to delay clinical resolution, increase length of hospital stay, and increase the risk of mortality. In addition, the increasing frequency with which resistant isolates (e.g., extended spectrum beta-lactamases [ESBLs]) are recovered from patients mandates that empiric antimicrobial therapy covers these difficult-to-treat organisms. Here, we assessed the efficacy of a new antimicrobial agent, tigecycline. This is a combined analysis of data from the European sites that participated in two Phase III, double-blind trials to evaluate the efficacy and safety of tigecycline, versus that of imipenem/cilastatin, in adults with complicated intra-abdominal infections. Patients received either tigecycline (initial dose of 100 mg, followed by 50 mg intravenously every 12 hours) or imipenem/cilastatin (500/500 mg intravenously every 6 hours) for 5-14 days. The primary end point was the clinical response at the test-of-cure visit (12-44 days after therapy) in the co-primary microbiologically evaluable (ME) and microbiological modified intent-to-treat (m-mITT) populations. For the ME group, clinical cure rates at the test-of-cure visit were 92.4% (219/ 237) for tigecycline versus 88.8% (198/223) for imipenem/cilastatin (95% CI = -2.2, 9.4). Clinical cure rates for the m-mITT populations were 87.3% (247/283) for tigecycline versus 83.5% (228/273) for imipenem/ cilastatin (95% CI = -2.5, 10.0) at the test-of-cure visit. Pretherapy in vitro activity against baseline isolates for tigecycline and imipenem/ cilastatin were also determined. The mean MIC₉₀ for tigecycline against the most commonly isolated aerobes and anaerobes was <=52.0 mug/ mL. No pretherapy isolates displayed resistance to tigecycline based on the breakpoints used. Bacterial susceptibilities to tigecycline appeared to be consistent with clinical responses. Most commonly reported treatment emergent adverse events for tigecycline and imipenem/ cilastatin were nausea (14.7% and 11.8%, respectively, p = 0.267) and vomiting (10.7% and 7.3%, respectively p = 0.146). This combined analysis demonstrates that tigecycline is safe and effective for the treatment of complicated intra-abdominal infections, and reflects the findings of the global population. E.S.I.F.T. srl - Firenze

20. Fomin P, Beuran M, Gradauskas A, Barauskas G, Datsenko A, Dartois N, et al. Tigecycline is efficacious in the treatment of complicated intra-abdominal infections. International Journal of Surgery 2005;3(1):35-47.

Ref ID: 190

Abstract: Background: Empiric treatment of complicated intra-abdominal infections (cIAI) represents a clinical challenge because of the diverse bacteriology and the emergence of bacterial resistance. The efficacy and safety of tigecycline (TGC), a first-in-class, expanded broad-spectrum glycylcycline antibiotic, were compared with imipenem/cilastatin (IMI/CIS) in patients with cIAI. Methods: In this prospective, double-blind, phase 3, multinational trial, patients were randomly assigned to intravenous (IV) TGC (100 mg initial dose, then 50 mg every 12 h) or IV IMI/CIS (500/500 mg every 6 h) for 5-14 days. Clinical response was assessed at the test-of-cure (TOC) visit (14-35 days after therapy) for microbiologically evaluable (ME) and microbiologically modified intent-to-treat (m-mITT) populations (co-primary efficacy endpoint populations in which cure/failure response rates were determined). Results: Of 817 mITT patients (i.e., received >= 1 dose of study drug), 641 (78%) comprised the m-mITT cohort (322 TGC, 319 IMI/CIS) and 523 (64%) were ME (266 TGC, 256 IMI/CIS). Patients were predominantly white (88%) and male (59%) with a mean age of 49 years. The primary diagnoses for the mITT group were complicated appendicitis (41%), cholecystitis (22%), and intra-abdominal abscess (11%). For the ME population, clinical cure rates at TOC were 91.3% (242/265) for TGC versus 89.9% (232/258) for IMI/CIS (95% CI -4.0, 6.8; P < 0.001). Corresponding clinical cure rates within the m-mITT population were 86.6% (279/322) for TGC versus 84.6% (270/319) for IMI/CIS (95% CI -3.7, 7.5; P < 0.001 for noninferiority TGC versus IMI/CIS). The most commonly reported adverse events for TGC and IMI/CIS were nausea (17.6% TGC versus 13.3% IMI/CIS; P = 0.100) and vomiting (12.6% TGC versus 9.2% IMI/CIS; P = 0.144). Conclusions: TGC is efficacious in the treatment of patients with cIAIs and TGC met per the protocol-specified statistical criteria for noninferiority to the comparator, IMI/CIS. 2005 Published by Elsevier Ltd on behalf of Surgical Associates Ltd

21. Gonzenbach HR, Simmen HP, Amgwerd R. Imipenem (N-F-thienamycin) versus netilmicin plus clindamycin. A controlled and randomized comparison in intra-abdominal infections. Ann Surg 1987;205(3):271-5.

    Ref ID: 629

    Abstract: In a randomized study the clinical and bacteriologic effectiveness of imipenem was compared with the classical combination of netilmicin with clindamycin in patients who had surgery for an intraperitoneal infection, localized or generalized, with positive bacteriologic findings of the specimen taken at surgery. Excluded were all patients who received other antibiotics before surgery, or who died within 3 days after antibiotic therapy was started. Imipenem was given at a dose of 500 mg t.i.d., clindamycin 600 mg t.i.d., and netilmicin according to serum levels. The diagnoses ranged from postoperative peritonitis, gallbladder empyema, perforated gastroduodenal ulcer, small bowel perforation with and without obstruction, and perforated appendicitis to perforation of the colon. The bacteriologic work-up included examination of the primary specimen (aerobic and anaerobic), the urine, feces, and serologic testing for Candida albicans once or twice a week and after the course of antibiotic therapy. In addition, pH measurements of abscesses and drainage fluids were performed. Ninety-three patients entered the study.

Forty-seven patients were treated with imipenem (test group), and 46 patients were treated with the combination therapy (control group). The two groups did not show significant differences in age, sex, diagnostic groups, risk factors, primary bacteriology, and duration of therapy (mean: 6.7 days). Thirty-eight patients (80.9%) treated with imipenem were cured, six patients (12.8%) were improved, and there were three (6.4%) failures. The respective numbers for the control group were 31 (67.4%), 10 (21.7%), and 5 (10.9%). The mean duration of hospitalization was 19 days for the test group and 24.5 days for the control group. There were four wound infections in the test group and 11 wound infections in the control group. Imipenem is at least as effective in the adjuvant therapy of intra-abdominal infections as the combination of netilmicin with clindamycin

22. Henning C, Meden-Britth G, Frolander F, Karlsson J, Dornbusch K. Comparative study of netilmicin/tinidazole versus netilmicin/clindamycin in the treatment of severe abdominal infections. Scand J Infect Dis 1984;16(3):297-303.
Ref ID: 657
Abstract: The efficacy of netilmicin combined with tinidazole (N + T) or clindamycin (N + C) in the treatment of severe abdominal infections was evaluated in a prospective randomized study with 20 patients in the N + T group and 21 patients in the N + C group. Normally the maintaining dose for netilmicin was 2.25 mg/kg every 12 h, for tinidazole 400 mg every 12 h and for clindamycin 300-600 mg every 6-8 h. The mean duration time of treatment was 8 days in the N + T group and 10 days in the N + C group respectively. In the N + T group 18 patients were cured and in the N + C group 17 patients. Among aerobic bacteria Escherichia coli was most frequently isolated and among anaerobes Bacteroides sp. All aerobic bacteria with 2 exceptions were susceptible to netilmicin and all anaerobic bacteria but 2 to tinidazole or clindamycin. Adequate serum levels were obtained for each antibiotic during therapy. In this study with a small number of patients the combination of netilmicin and tinidazole was as effective as netilmicin and clindamycin

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Ref ID: 959
Abstract: The efficacy of ciprofloxacin plus metronidazole was compared with that of cefotaxime plus gentamicin plus metronidazole in 79 patients with proven intra-abdominal infections. Patients were classified with the Peritonitis Index Altona-II (PIA-II) score for severity of disease, underlying conditions, prognosis and type of infection. Local peritonitis was diagnosed in 21 patients, generalized peritonitis in 25, intra-abdominal abscesses in 33; 35 patients had polymicrobial infections. Cure and improvement rates were: ciprofloxacin 77%, cefotaxime combination 56% ($p < 0.02$). Failures were significantly associated with a low initial PIA-II score, the presence of generalized peritonitis or abscesses, persistence of pathogens and superinfection. Superinfection was observed in 49% of the cases under cefotaxime and in 30% under ciprofloxacin. Concentrations of ciprofloxacin in pus ranged 2.0-5.2 mg/l with simultaneous serum concentrations of 1.2-3.1 mg/l

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Ref ID: 493
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Abstract: This multicentre, randomised, open-label, parallel group study compared the efficacy and safety of isepamicin (15 mg/kg once daily) and amikacin (7.5 mg/kg twice daily) when given intravenously in combination with metronidazole to 267 hospitalised adults with intra-abdominal infections. Clinical cure or improvement was achieved in 96.3% (130/135) evaluable patients (efficacy population) in the isepamicin group and 94.3% (66/70) patients in the amikacin group. Bacteriological elimination occurred in 93.3% (126/135) evaluable isepamicin patients and 95.7% (67/170) amikacin patients. there was not statistically significant differences between the groups. Adverse events were reported by 9% of patients in the isepamicin group (16/178) and 10% of patients in the amikacin group (9/89). Events considered to be related to treatment occurred in 6% of patients in both groups. The most frequent adverse events were diarrhoea, nausea and vomiting. Renal problems caused three patients (2 isepamicin, 1 amikacin) to withdraw from the study. Ototoxicity (detected by audiometric testing) occurred in one patient (treated with isepamicin). In conclusion, isepamicin at a dose of 15 mg/kg once daily was shown to be as effective as amikacin (7.5 mg/kg twice daily) in the treatment of intra-abdominal infections in hospitalised adults also treated with metronidazole. Both treatments were well tolerated

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Abstract: A randomized, prospective trial was conducted of 93 patients with operatively confirmed intra-abdominal sepsis. The study compared clindamycin-gentamicin and chloramphenicol-gentamicin for treatment of carefully stratified patient groups. Malnutri-

tion, age over 65 years, shock, alcoholism, gastrointestinal tract bleeding, steroid administration, diabetes, obesity, and organ malfunction were present with equal frequencies in each group. The duration of antibiotic treatment averaged 8 1/2 days, and the average length of postoperative hospitalization was 29 days. Study antibiotics were changed for bacteriologic reasons in 11 patients taking clindamycin-gentamicin and 12 patients taking chloramphenicol-gentamicin (25% of the total), and two patients in the clindamycin-gentamicin group had a minor adverse reaction. Initial satisfactory clinical responses were obtained in 59 (63%) patients. Twenty-five patients (27%) subsequently developed unsatisfactory courses, but 48 (52%) patients remained well through the 30-day period. Septic-related mortality occurred in 18 (19%) patients, and two (2%) patients had unrelated deaths. There were no significant differences between the study regimens by the outcome criteria evaluated

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    Abstract: Background: Complicated intra-abdominal infections (cIAIs) require surgical intervention and empiric antibacterial therapy. Doripenem, a broad-spectrum carbapenem, provides coverage of key gram-negative and -positive aerobes and anaerobes encountered in cIAI. Objective: This study was designed to compare the efficacy and safety profile of doripenem and meropenem in hospitalized adult patients with cIAI. Methods: In this prospective, multicenter, doubleblind, noninferiority study, hospitalized adults with cIAI were randomly assigned to receive doripenem 500 mg IV q8h or meropenem 1 g IV q8h. After a minimum of 9 doses and adequate clinical improvement (relative to before the start of IV study drug, decreased body temperature and white blood cell count, improved or absent signs and symptoms of cIAI, and return of normal bowel function), patients could be switched to oral amoxicillin/clavulanate. Antibacterial therapy (IV plus subsequent oral) was given for a total of 5 to 14 days. The coprimary efficacy end points were the clinical cure rate (complete resolution or significant improvement of signs or symptoms of the index infection) in patients microbiologically evaluable (>=1 baseline pathogen isolated from an intra-abdominal culture that was susceptible to both IV study drug therapies) at the test-of-cure (TOC) visit (21-60 days after the completion of study drug therapy) and the clinical cure rate in the microbiological modified intent-to-treat (mMITT) population (a bacterial pathogen identified at baseline, regardless of its susceptibility to the study drug). Noninferiority was concluded if the lower limit of the 2-sided 95% CI for the difference (doripenem minus meropenem) in the proportion of patients classified as clinical cures was >=-15%. Results: A total of 476 patients were enrolled. The microbiologically evaluable population (319 patients) was 62.7% male and 67.7% white, with a mean age and weight of 46.7 years and 77.2 kg, respectively. In this population, doripenem and meropenem were associated with clinical cure rates at the TOC visit of 85.9% and 85.3%, respectively. The corresponding treatment difference was 0.6% (95% CI, -7.7% to 9.0%); this difference was not statistically significant. Similarly,

in the mMITT population (385 patients), the clinical cure rates were 77.9% and 78.9%, respectively, and the corresponding 1.0% treatment difference was not statistically significant (95% CI, -9.7% to 7.7%). Clinical cure rates were not significantly different between the 2 treatment arms in key subgroups (eg, age, sex, race, baseline Acute Physiology and Chronic Health Evaluation II score, primary infection site). Microbiological eradication rates for common pathogens isolated at study entry were not significantly different between the 2 treatment groups. Doripenem was well tolerated in the population studied. In the intent-to-treat population (471 patients), 83.0% and 78.0% of patients experienced >=1 adverse event (AE) and 13.2% and 14.0% experienced >=1 serious AE in the doripenem and meropenem treatment arms, respectively. In the doripenem and meropenem treatment arms, AEs resulted in study drug discontinuation in 5.1% and 2.1% of patients and death in 2.1% and 3.0% of patients, respectively. Conclusions: The present study found that doripenem (500 mg q8h) was effective in the treatment of cIAI, was therapeutically noninferior to meropenem (1 g q8h), with a safety profile not significantly different from that of meropenem in this selected population of patients with cIAI. 2008 Excerpta Medica Inc. All rights reserved

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Abstract: In a prospective, randomized, single-blind trial, we studied 112 adults with intra-abdominal infections and compared antibiotic therapy with cefoxitin plus placebo to therapy with tobramycin plus clindamycin. Seventy-five percent of patients receiving tobramycin-clindamycin and 71% of those receiving cefoxitin-placebo had either shock, bacteremia, malnutrition, alcoholism, rapidly or ultimately fatal underlying disease, infection originating from the distal small bowel or colon, or had had failed therapy before treatment ('high-risk' group). One third of the patients in both groups grew bacteria in the initial culture resistant to the antibiotic regimen used. Ten patients receiving cefoxitin-placebo (17%) and 11 receiving tobramycin-clindamycin (21%) had recurrence of infection or died of infection (clinical failures). Nineteen failures occurred in high-risk patients ($p<0.05$) and 17 were in patients that had antibiotic-resistant bacteria in the initial culture ($p<0.01$). Adverse effects were rare and remitted after antibiotics were stopped. Our results suggest that both cefoxitin and tobramycin-clindamycin are appropriate antibiotic regimens to treat intra-abdominal infections. Clinical failure is more common in high-risk patients and when antibiotic-resistant organisms are isolated from initial cultures

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Abstract: OBJECTIVE: To review the biologic characteristics of, and management ap-

proaches to, intra-abdominal infection in the critically ill patient. DESIGN: Narrative review. SETTING: Medline review focussed on intra-abdominal infection in the critically ill patient. PATIENTS AND SUBJECTS: Restricted to studies involving human subjects. INTERVENTIONS: None. RESULTS: Intra-abdominal infections are an important cause of morbidity and mortality in the intensive care unit (ICU). Peritonitis can be classified as primary, secondary, or tertiary, the unique pathologic features reflecting the complex nature of the endogenous gut flora and the gut-associated immune system, and the alterations of these that occur in critical illness. Outcome is dependent on timely and accurate diagnosis, vigorous resuscitation and antibiotic support, and decisive implementation of optimal source control measures, specifically the drainage of abscesses and collections of infected fluid, the debridement of necrotic infected tissue, and the use of definitive measures to prevent further contamination and to restore anatomy and function. CONCLUSIONS: Optimal management of intra-abdominal infection in the critically ill patient is based on the synthesis of evidence, an understanding of biologic principles, and clinical experience. An algorithm outlining a clinical approach to the ICU patient with complex intra-abdominal infection is presented. [References: 110]

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    Abstract: Revised guidelines for the use of antimicrobial therapy in patients with intra-abdominal infections were recently developed by the Therapeutic Agents Committee of the Surgical Infection Society (Mazuski et al., Surg Infect 2002;3:161-173). These were based, insofar as possible, on evidence published over the past decade. The objective of this document is to describe the process by which the Committee identified and reviewed the published literature utilized to develop the recommendations and to summarize the results of those reviews. English-language articles published between 1990 and 2000 related to antimicrobial therapy for intra-abdominal infections were identified by a systematic MEDLINE search and an examination of references included in recent review articles. If current literature with regard to a specific issue was lacking, relevant articles published prior to 1990 were identified. All prospective randomized controlled trials, as well as other articles selected by the Committee, were evaluated individually and collectively. Data with regard to patient numbers, types of infections, and results of interventions were abstracted. Studies were categorized according to their design, and all included trials were graded according to quality. On the basis of this evidence, the Committee formulated recommendations for antimicrobial therapy for intra-abdominal infections and graded those recommendations. After receiving comments from invited reviewers and the general membership of the Society, the guidelines were finalized and submitted to the Council of the Surgical Infection Society for approval. The final recommendations related to the selection of patients needing therapeutic antimicrobials, acceptable antimicrobial regimens, duration of antimicrobial use, and the identification and treatment of higher-risk patients. Although numerous publications pertaining to these topics were identified, but nearly all of the prospective randomized controlled trials rep-

resented comparisons of different antimicrobial regimens for the treatment of intra-abdominal infections. A few prospective trials evaluated the need for therapeutic antimicrobial therapy in patients with peritoneal contamination following abdominal trauma. The quality of these prospective trials was highly variable. Many did not limit enrollment to patients with complicated intra-abdominal infections, lacked blinding of treatment assignment, did not provide a complete description of the criteria used to determine therapeutic success or failure, failed to identify the reasons why patients were excluded from analysis, or did not include an intention-to-treat analysis. For many issues, no prospective randomized controlled trials were encountered, and guidelines had to be formulated using evidence from studies with historical controls or uncontrolled data, or on the basis of expert opinion

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    Abstract: OBJECTIVES: To determine the clinical effectiveness and cost-effectiveness of (1) alternative strategies for the prevention of Staphylococcus aureus carriage in patients on peritoneal dialysis (PD) and (2) alternative strategies for the eradication of S. aureus carriage in patients on PD. DATA SOURCES: Major electronic databases were searched up to December 2005 (MEDLINE Extra up to 6 January 2006). REVIEW METHODS: Electronic searches were undertaken to identify published and unpublished reports of randomised controlled trials and systematic reviews evaluating the effectiveness of preventing and treating S. aureus carriage on peritoneal catheter-related infections. The quality of the included studies was assessed and data synthesised. Where data were not sufficient for formal meta-analysis, a qualitative narrative review looking for consistency between studies was performed. RESULTS: Twenty-two relevant trials were found. These fell into several groups: the first split is between prophylactic trials, aiming to prevent carriage, and trials which aimed to eradicate carriage in those who already had it; the second split is between antiseptics and antibiotics; and the third split is between those that included patients having the catheter inserted before dialysis started and people already on dialysis. Many of the trials were small or short-term. The quality was often not good by today's standards. The body of evidence suggested a reduction in exit-site infections, but this did not seem to lead to a significant reduction in peritonitis, although to some extent this reflected insufficient power in the studies and a low incidence of peritonitis in them. The costs of interventions to prevent or treat S. aureus carriage are relatively modest. For example, the annual cost of antibiotic treatment of S. aureus carriage per identified carrier of S. aureus was estimated at 179 pounds (73 pounds screening and 106 pounds cost of antibiotic). However, without better data on the effectiveness of the interventions, it is not clear whether such costs are offset by the cost of treating infections and averting changes from peritoneal dialysis to haemodialysis. Although treatment is not expensive, the lack of convincing evidence of clinical effectiveness made cost-effectiveness analysis unrewarding at present. However, considera-

tion was given to the factors needed in a hypothetical model describing patient pathways from methods to prevent S. aureus carriage, its detection and treatment and the detection and treatment of the consequences of S. aureus (e.g. catheter infections and peritonitis). Had data been available, the model would have compared the cost-effectiveness of alternative interventions from the perspective of the UK NHS, but as such it helped identify what future research would be needed to fill the gaps. CONCLUSIONS: The importance of peritonitis is not in doubt. It is the main cause of people having to switch from peritoneal dialysis to haemodialysis, which then leads to reduced quality of life for patients and increased costs to the NHS. Unfortunately, the present evidence base for the prevention of peritonitis is disappointing; it suggests that the interventions reduce exit-site infections, but not peritonitis, although this may be due to trials being in too small numbers for too short periods. Trials are needed with larger numbers of patients for longer durations. [References: 86]

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    Abstract: We conducted a retrospective pharmacoeconomic analysis of a prospective, multicenter, double-blind, randomized, controlled trial comparing the beta-lactamase inhibitor combination ampicillin-sulbactam (96 patients) and the cephalosporin cefoxitin (101) in the treatment of intraabdominal infections. An institutional perspective was adopted for the analysis. The primary outcomes of interest were cure and failure rates, development of new infection, and antibiotic-related adverse events. Epidemiologic data pertaining to outcomes was retrieved primarily from the trial, although results of other published studies were taken into consideration through extensive sensitivity analyses. Data pertaining to potential resource use and economic impact were retrieved mainly from the University Health Consortium and hospital-specific sources. When considering only costs associated with drug acquisition through cost-minimization analysis, a potential savings of $37.24/patient may be realized with ampicillin-sulbactam relative to cefoxitin based on an average 7-day regimen. Outcome data collected for the entire hospitalization during the trial revealed an approximately 9% greater frequency of failure with cefoxitin relative to ampicillin-sulbactam. When considering all outcomes of interest in the initial base-case analysis, a potential cost savings of approximately $890/patient may be realized with ampicillin-sulbactam relative to cefoxitin. In assessing the impact of the significant variability in probability and cost estimates, Monte Carlo analysis revealed a savings of $425/patient for ampicillin-sulbactam over cefoxitin (95% CI -$618 to $1516 [corrected]). Given the model assumptions, our analysis suggests a 78% certainty level that savings will be experienced when ampicillin-sulbactam is chosen over cefoxitin

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    Abstract: An open, randomised study was carried out to compare the efficacy and toler-

ability of pefloxacin plus metronidazole with gentamicin plus metronidazole in the coadjuvant treatment of generalised purulent peritonitis. The study was conducted on 100 patients of both sexes aged 18 to 93 years who had a diagnosis of diffuse purulent peritoneal infection. The antibiotics were administered up to a period of 4 days after all clinical or microbiological signs of infection had disappeared, with total treatment not exceeding 4 weeks. At the end of treatment, 6 of the 48 patients (12.5%) receiving pefloxacin plus metronidazole (PM group) and 21 of the 52 patients (40.4%) receiving gentamicin plus metronidazole (GM group) had localised infections. When the clinical efficacy of treatment was evaluated 15 days after discharge from the hospital, 39 patients in the PM group were found to be cured (81.2%), and there were 3 deaths (6.25%). In the GM group, 29 patients were found to be cured (55.7%), and there were 8 deaths (15.4%). Thus, the cure rate was significantly higher in the PM group than in the GM group (chi2 = 6.323; $p < 0.05$). We conclude that both antibiotic regimens utilised were effective as co-adjuvants in the surgical treatment of diffuse purulent peritonitis, although the pefloxacin/metronidazole combination led to a better cure rate.

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    Abstract: Forty hospitalized patients with clinical and laboratory evidence of intra-abdominal infections were randomly assigned to treatment either with piperacillin alone or with a gentamicin-clindamycin combination. Only patients with positive cultures and pathogens susceptible to study antibiotics were included in the study. Pregnancy, history of hypersensitivity to pencillins, resistant pathogens, and treatment with antibiotics three days prior to the study were the criteria for exclusion from the study. Cultures were obtained before treatment, three to five days after treatment was started, and two to four days after treatment was completed. Presumptive treatment was initiated before culture results were available. In the piperacillin group microbiological cure was obtained in 16 patients (80%), abdominal material for culture was not available and blood cultures were not done in two patients (10%), and two patients had positive cultures from wound exudate (10%). In the combination group, cultures became negative in 12 patients (60%), no abdominal material for culture was available during treatment in one patient, and cultures remained positive in seven patients (35%) after treatment was completed. Based on susceptibility tests two patients who did not respond to combination treatment were switched to piperacillin treatment and cultures became negative. No side effects were reported. The microbiological cure-rate differences between the two groups were not statistically significant. Piperacillin alone was at least as effective as the gentamicin-clindamycin combination in the treatment of the studied intra-abdominal infections.

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Abstract: BACKGROUND: Complicated intra-abdominal infections are a common problem in surgical practice. This study compared the effectiveness of ertapenem (1 g qd) and piperacillin/tazobactam (3.375 g q6h) in the treatment of these infections. METHODS: This was a multicenter, double-blinded, randomized study conducted in patients with complicated intra-abdominal infections. Of the 535 patients screened, 500 were stratified on the basis of disease severity (Acute Physiology and Chronic Health Evaluation [APACHE] II score < or =10 or >10), then randomized (1:1) to 4-14 days of treatment with one of the regimens and six weeks of followup. Nearly all patients (N = 494) were treated. The primary endpoint was the proportion of microbiologically evaluable patients with a favorable clinical response (cure) at two weeks. Non-inferiority of ertapenem was based on a difference in response rate of <15 percentage points compared with piperacillin/tazobactam (lower bound of the 95% CI > -15). RESULTS: Of the 494 treated patients, 231 were microbiologically evaluable, with 123 and 108 patients in the ertapenem and piperacillin/tazobactam groups, respectively. Statistically similar cure rates were observed in the ertapenem (82.1%) and piperacillin/tazobactam (81.7%) groups (difference 0.3 [95% CI: -9.6, 10.5]). The pathogens isolated most frequently were Escherichia coli, Bacteroides fragilis, and Bacteroides thetaiotamicron, typical isolates associated with intra-abdominal infections. There were no statistical differences between the groups in serious drug-related clinical adverse events, drug-related clinical adverse experiences leading to study discontinuation, or mortality. CONCLUSIONS: Ertapenem was non-inferior to piperacillin/tazobactam in the cure of intra-abdominal infections caused by susceptible pathogens. Both study drugs generally were well tolerated

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    Abstract: OBJECTIVE: To assess the effect of piperacillin/tazobactam compared with cefuroxime/metronidazole in the treatment of patients with intra-abdominal infections. DESIGN: Randomised open study. SETTING: 16 Swedish and 6 Norwegian hospitals. SUBJECTS: 269 patients with intra-abdominal infections were randomised and treated with at least one dose of each study drug. 205 patients, 105 treated with piperacillin/tazobactam and 100 with cefuroxime, were clinically evaluable for follow up (had been given the full course of treatment). INTERVENTION: Patients were given piperacillin 4g/tazobactam 0.5 g every 8 hours or cefuroxime 1.5 g every 8 hours plus metronidazole 1.5 g every 24 hours. Each patient was to be treated for a minimum of 3 days and not more than 10 days. MAIN OUTCOME MEASURES: Clinical evaluation of infection at the end of and 4-6 weeks after treatment. Evaluation of safety and tolerance to the drugs and bacteriological susceptibility to the treatment drugs. RESULTS: In the intention to treat analysis treatment was equally successful for piperacillin/ tazobactam (103/140, 74%) and the cefuroxime/metronidazole groups (90/129, 70%) (p = 0.6). Corresponding figures for the clinically evaluable group were 102/105 (97%) and 94/100 (94%) for piperacillin/tazobactam and cefuroxime/metronidazole groups, respectively, at the end of

treatment. At late follow up, 92/105 (88%) and 83/100 (83%) in the two groups, respectively, remained free of infection. The side effects of the treatment were mild and evenly distributed between the two groups. Most pathogens were susceptible to the drugs in both treatment groups. CONCLUSION: Both piperacillin/tazobactam and cefuroxime/metronidazole are well suited to the treatment of patients with intra-abdominal infections, and we found no significant difference between the two. The drugs were safe and well tolerated in the regimens used

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Ref ID: 391
Abstract: BACKGROUND: Complicated intra-abdominal infections (cIAI) remain challenging to treat because of their polymicrobial etiology including multi-drug resistant bacteria. The efficacy and safety of tigecycline, an expanded broad-spectrum glycylcycline antibiotic, was compared with imipenem/cilastatin (IMI/CIS) in patients with cIAI. METHODS: A prospective, double-blind, multinational trial was conducted in which patients with cIAI randomly received intravenous (IV) tigecycline (100 mg initial dose, then 50 mg every 12 hours [q12h]) or IV IMI/CIS (500/500 mg q6h or adjusted for renal dysfunction) for 5 to14 days. Clinical response at the test-of-cure (TOC) visit (14-35 days after therapy) for microbiologically evaluable (ME) and microbiological modified intent-to-treat (m-mITT) populations were the co-primary efficacy endpoint populations. RESULTS: A total of 825 patients received >or= 1 dose of study drug. The primary diagnoses for the ME group were complicated appendicitis (59%), and intestinal (8.8%) and gastric/duodenal perforations (4.6%). For the ME group, clinical cure rates at TOC were 80.6% (199/247) for tigecycline versus 82.4% (210/255) for IMI/CIS (95% CI -8.4, 5.1 for non-inferiority tigecycline versus IMI/CIS). Corresponding clinical cure rates within the m-mITT population were 73.5% (227/309) for tigecycline versus 78.2% (244/312) for IMI/CIS (95% CI -11.0, 2.5). Nausea (31.0% tigecycline, 24.8% IMI/CIS [P = 0.052]), vomiting (25.7% tigecycline, 19.4% IMI/CIS [P = 0.037]), and diarrhea (21.3% tigecycline, 18.9% IMI/CIS [P = 0.435]) were the most frequently reported adverse events. CONCLUSION: This study demonstrates that tigecycline is as efficacious as imipenem/cilastatin in the treatment of patients with cIAI

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Ref ID: 355
Abstract: BACKGROUND: A series of 459 hospitalized adults with complicated intra-abdominal infections participated in a randomized, double-blind, multicenter clinical trial. The present study was conducted to add a pharmacoeconomic analysis to the results. METHODS: A cost-effectiveness analysis from the perspective of the hospital provider was carried out. Decision analysis was used to illustrate outcomes and to provide a basis on which to conduct a sensitivity analysis. Cost-effectiveness ratios, representing the

cost per expected successfully treated patient, were calculated to determine the most cost-effective alternative. RESULTS: Among 244 economically evaluable patients, enrolled from 34 centers in the U.S. and Canada, 131 patients received ciprofloxacin-metronidazole (75% clinical success rate), and 113 received piperacillin-tazobactam (65% clinical success rate; p = 0.06). Switch to oral antibiotics was possible for 81 patients who received ciprofloxacin-metronidazole (85% clinical success rate) and 67 piperacillin-tazobactam patients (70% clinical success rate; p = 0.027). The mean hospital cost was US$10,662 +/- 7,793 for patients in the ciprofloxacin-metronidazole group and $10,009 +/- 7,023 for patients in the piperacillin-tazobactam group (p = 0.492). Significantly lower costs were documented for patients who could be switched to oral antibiotics than for those continued on intravenous antibiotic orders ($8,684 +/- 4,120 vs. $12,945 +/- 10,204, respectively; p < 0.001). Patients with appendicitis had lower mean hospital costs than those with other infections ($7,169 +/- 3,705 vs. $12,097 +/- 8,342, respectively; p < 0.001). The cost-effectiveness ratios were $14,216:1 for patients in the ciprofloxacin-metronidazole group and $15,398:1 for patients in the piperacillin-tazobactam group. CONCLUSIONS: The mean hospital costs associated with ciprofloxacin-metronidazole were similar to those of piperacillin-tazobactam for the treatment of adults with complicated intra-abdominal infections. Lower costs were documented for patients able to be switched to oral antibiotics and for patients with appendicitis

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    Abstract: A randomized prospective trial was undertaken in adult patients with serious intra-abdominal infections to determine whether a new combination of antibiotic therapy could prove as efficacious as the combination that has been widely used in practice in the recent decade (clindamycin and gentamicin). Three hundred thirty-one patients were randomized in a 2:1 ratio, with the larger number of patients being treated parenterally with piperacillin and tazobactam. The results showed that both the clinical and microbiologic performance of the piperacillin/tazobactam combination was better than that of clindamycin and gentamicin. This clinical equivalence permits overall cost savings without compromising the existing quality of antimicrobial therapy for intra-abdominal infection

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piperacillin in severe abdominal infection. Aspoxicillin 4 g administered tds (n = 52) or piperacillin 4 g qds (n = 53) usually as monotherapy were randomly given to patients suffering from perforated appendicitis, acute cholecystitis, ulcer or colon perforation, or intra-abdominal abscess. Blood, tissue and exudate cultures were obtained when applicable for pathogen identification and susceptibility testing. The efficacy rates were similar in the two study groups. Of the 50 evaluable aspoxicillin patients 45 (90%) were considered as treatment responders compared with 48 patients out of 53 (91%) in the piperacillin group (NS). The 95% confidence interval for the efficacy difference was -12% to +11% thus showing no difference between the two drugs. Both drugs were generally well tolerated and no serious drug-related adverse events were noted. However, five patients died because of their illness and one patient had a fatal myocardial infarction. In conclusion, aspoxicillin 4 g tds was shown to be equal to piperacillin 4 g qds in severe abdominal infections

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Ref ID: 312

44. Scott SD, Karran SJ. Cefotetan in the treatment of serious intra-abdominal sepsis: a controlled clinical trial. Int J Clin Pharmacol Res 1987;7(3):229-31.
Ref ID: 627
Abstract: Cefotetan has been compared with two regimens of combination antibiotic therapy in the treatment of peritonitis and serious intra-abdominal sepsis. One hundred predominantly elderly patients (median age 66 years) were entered into a prospective randomized surgical trial. Sixty-two per cent had peritonitis. There were seven non-septic deaths. Side-effects were similar in each group and generally of a minor, self limiting nature. Haematological and biochemical factors were closely monitored, and though there were increases in the prothrombin time, there was no statistical difference between cefotetan and comparators. Cefotetan is as effective as combination therapy in the treatment of surgical patients with serious intra-abdominal sepsis

45. Sharma BK, Rodriguez H, Gandhi VC, Smith EC, Pillay VK, Dunea G. Trial of oral neomycin during peritoneal dialysis. The American journal of the medical sciences 1971;262(3):175-8.
Ref ID: 324

46. Sitges-Serra A, Guirao X, Diaz J, Azanza R, Rodriguez NA, Lizasoain M, et al. Prospective randomized trial of meropenem versus cefotaxime and metronidazole in the treatment of intraabdominal infections. Med Clin (Barc) 1998;111(3):88-91.
Ref ID: 479
Abstract: BACKGROUND: The empiric antibiotic treatment of intraabdominal infections is in constant evolution. Monotherapy appears to be a desirable goal because of the simplicity of its administration, lack of toxic effects and wide spectrum. PATIENTS AND METHODS: A multicentre, prospective, randomized, open study was carried out to compare two antibiotic regimens in the treatment of intraabdominal infections in patients un-

dergoing surgery. Ninety-eight consecutive patients were randomly allocated into two groups. One group (GM, n = 51) received meropenem (1 g/8 h) and the other (GCM, n = 47) a combination of cefotaxime (2 g/8 h) plus metronidazol (0.5 g/8 h). Clinical and bacteriological responses were assessed at the end of treatment and at 2-4 weeks. RESULTS: The severity of patients as assessed by the APACHE II score was similar in both groups (GM: 7.2 and GCM: 8.1). Three patients in each group could not be evaluated due to premature interruption of treatment or deviation from the protocol. The mean duration of treatment was 7.4 days in GM and 7.9 days in GCM. A satisfactory clinical response was obtained in 95% of patients in both groups. 31 patients (61%) in GM and 26 patients (55%) in GCM were bacteriologically evaluable. Bacteriological erradication was achieved in 94% of patients in GM and in 92% of patients in GCM. CONCLUSION: Meropenem is a good alternative for single antibiotic therapy in intraabdominal infections of moderate severity

47. Smith JA, Forward AD, Skidmore AG, Bell GA, Murphy JM, Sutherland E. Metronidazole in the treatment of intra-abdominal sepsis. Surgery 1983;93(1:Pt:2):t-20.
Ref ID: 666
Abstract: A study of antibiotic treatment of intra-abdominal sepsis was conducted between May 1978 and May 1981. In the first phase, clindamycin (C) was compared with metronidazole (M), each combined with tobramycin (T), in a prospective, double-blind, randomized study. Twenty-three patients received C + T and 34 patients received M + T. The two groups were similar with respect to age, gender, underlying disease, presence of abscess, clinical condition, severity of illness, duration of illness before treatment and bacteriology. Anaerobic organisms outnumbered facultative and aerobic organisms. Bacteroides fragilis and Escherichia coli predominated. In the C + T group of patients, 74% had a good response. In the M + T group, 83% had good results. Adverse effects were few and minor in the two treatment groups. Three patients on C + T and one who received M + T followed by C + T died of infections; two patients died of underlying disease. In the second, open phase of the study, M + T was used to treat 45 patients with 46 courses. Twenty patients had intra-abdominal abscesses, which represented all grades of severity of illness. Five patients received long-term corticosteroid therapy. Almost half the patients had peritonitis complicating appendicitis. Good results were obtained in 81%. One patient died of the underlying disease and one died of infection complicating severe trauma and hypovolemic shock

48. Smith JA, Skidmore AG, Forward AD. Prospective, randomized, double-blind comparison of metronidazole and tobramycin with clindamycin and tobramycin in the treatment of intra-abdominal sepsis. Ann Surg 1980;192(3):213-20.
Ref ID: 321
Abstract: In a prospective, double-blind study, clindamycin was compared with metronidazole, each combined with tobramycin and all by the intravenous route in the treatment of intra-abdominal sepsis. Twenty-three patients received clindamycin and 34 patients received 35 courses of metronidazole. Analysis of the clinical responses of patients indicates that the two antibiotic regiments are of equal efficacy in that there was no differ-

ence between them in terms of defervescence or duration of infection. Few adverse effects were noted, and all appeared to be of a minor nature

49. Soares-Weiser K, Brezis M, Leibovici L. Antibiotics for spontaneous bacterial peritonitis in cirrhotics. Cochrane Database of Systematic Reviews 2001;(3):CD002232.
Ref ID: 441
Abstract: BACKGROUND: Spontaneous bacterial peritonitis is mainly a complication of cirrhotic ascites that occurs in the absence of any intra-abdominal, surgically treatable source of infection. Antibiotics have been recommended as the mainstay treatment for spontaneous bacterial peritonitis. However, this recommendation is not based on convincing evidence. It has been proposed that treatment should cover Gram-negative enteric bacteria and Gram-positive cocci, that are responsible for up to 90% of cases. OBJECTIVES: To evaluate the effectiveness and safety of different types and ways of antibiotic therapy for spontaneous bacterial peritonitis in cirrhotic patients. SEARCH STRATEGY: Electronic searches on the Cochrane Library (Issue 3, 2000), the Cochrane Hepato-Biliary Group Trials Register (March 2000), EMBASE (1980-2000), MEDLINE (1966-2000); scanning the references of all identified studies; contacting the first author of each included trial. SELECTION CRITERIA: Randomised trials comparing different types of antibiotics for spontaneous bacterial peritonitis in cirrhotic patients. DATA COLLECTION AND ANALYSIS: Data were independently extracted by two reviewers. Relative risks or weighted mean differences, with their 95% confidence intervals were estimated using 'intention-to-treat' analyses. MAIN RESULTS: Nine trials dealing with 684 patients diagnosed with spontaneous bacterial peritonitis were included. No placebo-controlled trial was found. Each of the included trials compared different antibiotics, and no meta-analysis could be performed. We were unable to establish the optimal dose or duration of antibiotic therapy and found no convincing evidence that cefotaxime is more effective than ampicillin-tobramycin or that oral quinolones should be recommended for patients with less severe manifestations of the disease. REVIEWER'S CONCLUSIONS: This review provides no clear evidence for the treatment of cirrhotic patients with spontaneous bacterial peritonitis. Until large, well-conducted, trials provide adequate evidence, treatment must be based on clinical experience. [References: 28]

50. Solomkin J, Zhao YP, Ma EL, Chen MJ, Hampel B, DRAGON Study Team. Moxifloxacin is non-inferior to combination therapy with ceftriaxone plus metronidazole in patients with community-origin complicated intra-abdominal infections. Int J Antimicrob Agents 2009;34(5):439-45.
Ref ID: 338
Abstract: Management of community-origin complicated intra-abdominal infections (cIAIs) requires surgical intervention and antimicrobial therapy. This multinational, randomised, double-blind clinical trial carried out in Asia compared the efficacy and safety of moxifloxacin monotherapy and ceftriaxone/metronidazole combination therapy in adults with confirmed or suspected cIAI. Patients received surgical intervention and either intravenous (i.v.) moxifloxacin 400 mg once daily or i.v. ceftriaxone 2 g once daily plus i.v. metronidazole 500 mg twice daily. A total of 364 patients were randomised [intent-to-treat (ITT), moxifloxacin N=180, comparator N=181; per-protocol (PP), moxiflox-

acin N=174, comparator N=171]. The most common cIAI diagnosis was complicated appendicitis. Moxifloxacin was non-inferior to ceftriaxone/metronidazole in terms of clinical response at test-of-cure in the PP population [clinical cure, 90.2% for moxifloxacin vs. 96.5% for ceftriaxone/metronidazole; 95% confidence interval (CI) of the difference -11.7 to -1.7] and in the ITT population (87.2% for moxifloxacin vs. 91.2% for ceftriaxone/metronidazole; 95% CI -10.7 to 1.9). Bacteriological cure rates in the microbiologically evaluable population support the clinical results (89.4% for moxifloxacin vs. 95.9% for ceftriaxone/metronidazole; 95% CI -13.3 to -0.6). The incidence of treatment-emergent adverse events was similar for both treatment groups (moxifloxacin 31.7% vs. comparator 24.3%). These results confirm previous findings that moxifloxacin plus adequate source control is an appropriate treatment of cIAI

51. Solomkin JS, Yellin AE, Rotstein OD, Christou NV, Dellinger EP, Tellado JM, et al. Ertapenem versus piperacillin/tazobactam in the treatment of complicated intraabdominal infections: results of a double-blind, randomized comparative phase III trial. Ann Surg 2003;237(2):235-45.
Ref ID: 424
Abstract: OBJECTIVE: To examine the clinical efficacy and safety of ertapenem, a novel beta-lactam agent with wide activity against common pathogens encountered in intraabdominal infection. SUMMARY BACKGROUND DATA: Ertapenem has a pharmacokinetic profile and antimicrobial spectrum that support the potential for use as a once-a-day agent for the treatment of common mixed aerobic and anaerobic infections. METHODS This prospective, randomized, controlled, and double-blind trial was conducted to compare the safety and efficacy of ertapenem with piperacillin/tazobactam as therapy following adequate surgical management of complicated intraabdominal infections. RESULTS: Six hundred thirty-three patients were included in the modified intent-to-treat population, with 396 meeting all criteria for the evaluable population. Patients with a wide range of infections were enrolled; perforated or abscessed appendicitis was most common (approximately 60% in microbiologically evaluable population). A prospective, expert panel review was conducted to assess the adequacy of surgical source control in patients who were failures as a component of evaluability. For the modified intent-to-treat groups, 245 of 311 patients treated with ertapenem (79.3%) were cured, as were 232 of 304 (76.2) treated with piperacillin/tazobactam. One hundred seventy-six of 203 microbiologically evaluable patients treated with ertapenem (86.7%) were cured, as were 157 of the 193 (81.2%) treated with piperacillin/tazobactam. CONCLUSIONS: In this study, the efficacy of ertapenem 1 g once a day was equivalent to piperacillin/tazobactam 3.375 g every 6 hours in the treatment of a range of intraabdominal infections. Ertapenem was generally well tolerated and had a similar safety and tolerability profile to piperacillin/tazobactam. A formal process for review of adequacy of source control was found to be of benefit. The results of this trial suggest that ertapenem may be a useful option that could eliminate the need for combination and/or multidosed antibiotic regimens for the empiric treatment of intraabdominal infections

52. Solomkin JS, Dellinger EP, Christou NV, Busuttil RW. Results of a multicenter trial comparing imipenem/cilastatin to tobramycin/clindamycin for intra-abdominal infections. Ann

Surg 1990;212(5):581-91.
Ref ID: 585
Abstract: We designed a multicenter study to compare tobramycin/clindamycin to imipenem/cilastatin for intra-abdominal infections. We included the Acute Physiology and Chronic Health Evaluation (APACHE II) index of severity and excluded patients without established infection. Two hundred ninety patients were enrolled, of whom 162 were evaluable. Using logistic regression to analyze both outcome at the abdominal site of infection and outcome as mortality, we found a significant correlation for both with APACHE II score (p less than 0.0001 for both). Next we analyzed the residual effect of treatment assignment and found a significant improvement in outcome for imipenem/cilastatin-treated patients (p = 0.043). The differences in outcome were explained by a higher failure rate for patients with gram-negative organisms for tobramycin/clindamycin-treated patients (p = 0.018). This was reflected in a significantly higher incidence of fasciitis requiring reoperation and prosthetic fascial replacement. Maximum peak tobramycin levels were analyzed for 63 tobramycin/clindamycin patients harboring gram-negative organisms. For failures the maximum peak was 6.4 +/- 1.9 micrograms/mL, and time to maximum peak was 4.6 +/- 5.2 days. For successes the maximum peak was 6.1 +/- 1.7 micrograms/mL, occurring at 3.8 +/- 2.6 days. This study supports inclusion of severity scoring in statistical analyses of outcome results and supports the notion that imipenem/cilastatin therapy improves outcome at the intra-abdominal site of infection as compared to a conventionally prescribed amino-glycoside-based regimen

53. Tkacz B, Stepka K. Comparison of effect and tolerance of mezlocillin with carbenicillin in the treatment of bacterial infections. Infection 1982;10:Suppl-30.
Ref ID: 670
Abstract: Of 60 patients who were suffering from bacterial infections, 30 were treated with mezlocillin and 30 with carbenicillin in a randomized study. The patients received the recommended daily doses of 16 g and 30 g, respectively. Clinical efficacy was found in all patients. Mezlocillin eliminated the strains more reliably than carbenicillin. The bacteriological success rate was 27/30 and 16/30, respectively. We should also take into account the fact that the six patients with cholecystitis who were treated with carbenicillin could not be controlled after treatment

54. Torres AJ, Valladares LD, Jover JM, Sanchez-Pernaute A, Frias J, Carcas AJ, et al. Cefminox versus metronidazole plus gentamicin intra-abdominal infections: a prospective randomized controlled clinical trial. Infection 2000;28(5):318-22.
Ref ID: 447
Abstract: BACKGROUND: The aim of this prospective study was to compare the safety and efficacy of a new cephamycin, cefminox 2 g/12 h, to those of the usual regimen combining metronidazole 500 mg/8 h and gentamicin 80 mg/8 h (M+G). PATIENTS AND METHODS: 160 patients with clinically proven intra-abdominal infection were prospectively included in an open parallel randomized comparative multicenter trial. Antibiotics were started preoperatively and discontinued after clinical and laboratory evidence of resolution of the infection. Serum and peritoneal fluid levels and serum bactericidal activities were also studied. RESULTS: 150 patients were clinically evaluable. There was

one failure in the cefminox group and three in the M+G group (not significant, RR: 1.07, 95% CI: 1-1.15). No differences were found in the number of wound infections, length of stay or duration of antibiotic therapy. Adverse effects were reported in 11 cases, all of them mild to moderate. Escherichia coli and Bacteroides fragilis were the most frequently found microorganisms. CONCLUSION: Cefminox is as effective and as safe as M+G in the treatment of intra-abdominal infections

55. Walker AP, Nichols RL, Wilson RF, Bivens BA, Trunkey DD, Edmiston J, et al. Efficacy of a beta-lactamase inhibitor combination for serious intra- abdominal infections. Ann Surg 1993;217(2):115-21.
Ref ID: 268
Abstract: A double-blind trial was conducted in 385 patients with suspected bacterial intra-abdominal infections to compare the efficacy and safety of ampicillin-sulbactam with cefoxitin. Patients were randomized to receive either 3 g ampicillin-sulbactam (2 g ampicillin-1 g sulbactam), or 2 g cefoxitin, every 6 hours. To be evaluable, patients had to demonstrate positive culture evidence of peritoneal infection at the time of operation. A total of 197 patients were evaluable for clinical efficacy. The two treatment groups were comparable in demographic features and in the presence of risk factors for infection. Clinical success (absence of infection and of adverse drug reaction) was observed in 86% of patients in the ampicillin-sulbactam group and 78% in the cefoxitin group. Eradication of infection occurred in 88% of the ampicillin-sulbactam group and 79% of the cefoxitin group. There were no differences in the nature or frequency of side effects observed in the two groups. Ampicillin-sulbactam demonstrated no difference in safety or efficacy when compared with cefoxitin in the treatment of serious intra- abdominal infections of bacterial origin

56. Weiss G, Reimnitz P, Hampel B, Muehlhofer E, Lippert H, AIDA Study Group. Moxifloxacin for the treatment of patients with complicated intra-abdominal infections (the AIDA Study). J Chemother 2009;21(2):170-80.
Ref ID: 341
Abstract: This prospective, randomized, open, international, multicenter study of adults with complicated intra-abdominal infections (cIAI) compared the efficacy and safety of sequential intravenous (i.v.) to oral (p.o.) moxifloxacin 400 mg once daily, with that of i.v. ceftriaxone 2 g once daily, plus metronidazole 500 mg three times daily, followed by p.o. amoxicillin/clavulanate 625 mg three times daily. The primary efficacy variable was clinical cure at test of cure (TOC) (day 28-42 after study entry) in the per protocol (PP) population. Of 595 patients in the study, 511 patients were valid for PP analysis (246 moxifloxacin, 265 ceftriaxone/metronidazole). Sequential moxifloxacin was noninferior to the comparator regimen--clinical cure rates at TOC were 80.9% versus 82.3% (moxifloxacin versus ceftriaxone/metronidazole; 95% CI -8.9, 4.2%). The incidence of adverse events was comparable between the two treatment groups. Therefore, sequential moxifloxacin monotherapy is as effective and safe as combination therapy with i.v. ceftriaxone plus i.v. metronidazole followed by oral amoxicillin/clavulanate for the treatment of cIAI

57. Wilson SE. Cephalosporin therapy in intra-abdominal infection: comparative studies of cefotetan, latamoxef and cefoxitin. Chemioterapia 1988;7(4):213-7.
Ref ID: 610
Abstract: Two sequential randomised studies were performed to assess the efficacy of 3 different cephalosporins in the treatment of established intra-abdominal infections. In the first study 102 of 109 (94%) patients given cefotetan 2g iv every 12 hours had a satisfactory clinical response compared to 51 of 56 (91%) patients given latamoxef 2g iv every 8 hours. In the second study cefotetan 2g iv every 12 hours was compared to cefoxitin 2g iv every 6 hours with satisfactory clinical responses in 93 of 95 (98%) cefotetan-treated patients and 41 of 43 (95%) cefoxitin-treated patients. Overall response rates in the two studies were lower in patients with severe peritonitis (82%) or nosocomial infections (70%). Twelve-hourly dosing with cefotetan appears to be as effective and well tolerated in regional peritonitis as treatment with shorter-acting agents

58. Wilson SE, Boswick JA, Jr., Duma RJ, Echols RM, Jemsek JG, Lerner R, et al. Cephalosporin therapy in intraabdominal infections. A multicenter randomized, comparative study of cefotetan, moxalactam, and cefoxitin. Am J Surg 1988;155(5A):61-6.
Ref ID: 615
Abstract: Three broad-spectrum cephalosporins (cefotetan, moxalactam, and cefoxitin) proved effective in this randomized, prospective trial for treatment of 303 surgical patients with moderately severe regional peritonitis

59. Zaitsev AA. Carbapenem antibiotic ertapenem in the treatment of extrahospital intraabdominal infections. Khirurgiia (Sofiia) 2003;(4):51-4.
Ref ID: 422

60. Zanetti G, Harbarth SJ, Trampuz A, Ganeo M, Mosimann F, Chautemps R, et al. Meropenem (1.5 g/day) is as effective as imipenem/cilastatin (2 g/day) for the treatment of moderately severe intra-abdominal infections. Int J Antimicrob Agents 1999;11(2):107-13.
Ref ID: 463
Abstract: This multicentre, open-label, randomised trial compared meropenem (0.5 g/8 h) and imipenem/cilastatin (at the commonly used dosage of 0.5 g/6 h) in monotherapy in patients with moderately severe intra-abdominal infections (IAIs). In total, 161 patients were randomised (82 meropenem, 79 imipenem/cilastatin). The mean APACHE II scores in the two groups were 5.8 and 6.4, respectively. At the end of therapy, 65/71 (91.6%) evaluable meropenem recipients were clinically cured or improved, compared to 60/64 (93.8%) imipenem/cilastatin recipients. This difference and that in an intention-to-treat analysis (82.1 vs 86.1%, respectively), were not statistically significant. Both drugs were generally well tolerated. Thus, meropenem 0.5 g/8 h is as clinically effective and well tolerated as imipenem/cilastatin 0.5 g/6 h in moderately severe IAIs

Vedlegg

Søketrategier

EMBASE og Ovid MEDLINE

Fellessøk i: EMBASE 1980 to 2011 Week 08 og Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1948 to Present
Dato: 03.03 2011
Filter: Ovids filtrer i Medline: Clinical queries "therapy (specificity)" og "reviews (specificity)". Ovids filtrer i EMBASE: Clinical queries "treatment (2 or more terms high specificity)" og "reviews (2 or more terms high specificity)".
Antall treff: 702

1 exp Anti-Bacterial Agents/
2 (antibiotic* or ((antiinfective or anti-infective or anti-bacterial or antibacterial) adj agent*)).tw.
3 (antimicrobial* or anti-microbial*).tw.
4 or/1-3
5 Peritonitis/
6 (Peritonit* or periviscerit* or ((peritoneal* or intraperitoneal*) adj3 infect*)).tw.
7 or/5-6
8 exp Cholangitis/
9 (cholangiti* or (biliar* adj2 (tract* or duct*) adj2 inflammat*) or angiocholit*).tw.
10 or/8-9
11 exp Cholecystitis/
12 (Cholecystit* or ((gallbladder or (gall adj bladder)) adj2 (empyem* or inflammat* or infect*)) or cholangiocholecystit*).tw.
13 or/11-12
14 7 or 10 or 13
15 4 and 14
16 limit 15 to "reviews (specificity)"
17 limit 15 to "therapy (specificity)"
18 16 use prmz

19 17 use prmz
20 18 or 19
21 exp antibiotic agent/
22 (antibiotic* or ((antiinfective or anti-infective or anti-bacterial or antibacterial) adj agent*)).tw.
23 (antimicrobial* or anti-microbial*).tw.
24 or/21-23
25 primary peritonitis/
26 exp peritonitis/
27 (Peritonit* or periviscerit* or ((peritoneal* or intraperitoneal*) adj3 infect*)).tw.
28 or/25-27
29 cholangitis/
30 biliary tract inflammation/
31 (cholangiti* or (biliar* adj2 (tract* or duct*) adj2 inflammat*) or angiocholit*).tw.
32 or/29-31
33 exp cholecystitis/
34 biliary tract inflammation/
35 (Cholecystit* or ((gallbladder or (gall adj bladder)) adj2 (empyem* or inflammat* or infect*)) or cholangiocholecystit*).tw.
36 or/33-35
37 28 or 32 or 36
38 24 and 37
39 limit 38 to "reviews (2 or more terms high specificity)"
40 limit 38 to "treatment (2 or more terms high specificity)"
41 39 use emez
42 40 use emez
43 41 or 42
44 20 or 43
45 remove duplicates from 44

Cochrane Library

Søk i: Cochrane Library
Dato: 03.03 2011
Filter: Ingen
Antall treff: 542 (15 CDSR, 12 DARE, 497 CENTRAL, 18 EED)

#1 MeSH descriptor Anti-Bacterial Agents explode all trees
#2 (antibiotic* or ((antiinfective or anti-infective or anti-bacterial or antibacterial) NEXT agent*)):ti,ab,kw
#3 (antimicrobial* or anti-microbial*)

#4 (#1 OR #2 OR #3)
#5 MeSH descriptor Peritonitis, this term only
#6 (Peritonit* or periviscerit* or ((peritoneal* or intraperitoneal*) NEAR/3 infect*)):ti,ab,kw
#7 (#5 OR #6)
#8 MeSH descriptor Cholangitis explode all trees
#9 (cholangiti* or (biliar* NEAR/2 (tract* or duct*) NEAR/2 inflammat*) or angiocholit*):ti,ab,kw
#10 (#8 OR #9)
#11 MeSH descriptor Cholecystitis explode all trees
#12 (Cholecystit* or ((gallbladder or (gall adj bladder)) NEAR/2 (empyem* or inflammat* or infect*)) or cholangiocholecystit*):ti,ab,kw
#13 (#11 OR #12)
#14 (#7 OR #10 OR #13)
#15 (#4 AND #14)

CRD

Søk i: CRD
Dato: 03.03 2011
Filter: Ingen
Antall treff: 72 (41 DARE, 30 NHS EED, 1 HTA)

Search
#1 MeSH Anti-Bacterial Agents EXPLODE 1
#2 (antimicrobial* NEAR agent*) OR (anti-microbial* NEAR agent*) OR (anti-infective* NEAR agent*)
#3 (anti-infective* NEAR agent*) OR (anti-bacterial* NEAR agent*) OR (anti-bacterial* NEAR agent*)
#4 antibiotic*
#5 #1 or #2 or #3 or #4
#6 MeSH Peritonitis
#7 (Peritonit* OR periviscerit* OR (peritoneal* NEAR infect*) OR (intraperitoneal* NEAR infect*))
#8 MeSH Cholangitis
#9 ((cholangiti* OR angiocholit*) OR (biliar* NEAR tract* NEAR inflammat*) OR (biliar* NEAR duct* NEAR inflammat*))
#10 MeSH Cholecystitis EXPLODE 1
#11 ((Cholecystit* OR cholangiocholecystit*) OR (gallbladder NEAR empyem*) OR (gallbladder NEAR inflammat*) OR (gallbladder NEAR infect*))
#12 (gall NEAR bladder NEAR empyem*) OR (gall NEAR bladder NEAR inflammat*) OR (gall NEAR bladder NEAR infect*)
#13 #6 or #7

#14 #8 or #9
#15 #10 or #11 or #12
#16 #13 or #14 or #15
#17 #5 and #16

Elektroniske kliniske oppslagsverk

Søk i: UpToDate
Dato: 03.03 2011
Filter: Ingen
Antall treff: ca 250 totalt
Søk: Peritonitis antibiotics

De mest relevante treffene (ikke med i RefMan-basen):
Treatment and prophylaxis of spontaneous bacterial peritonitis
Microbiology and therapy of peritonitis in continuous peritoneal dialysis
Treatment of acute diverticulitis
Acute appendicitis in children: Management
Emergent evaluation of the child with acute abdominal pain
Acute appendicitis in adults: Management
Clinical manifestations of spontaneous bacterial peritonitis
Treatment of Pseudomonas aeruginosa infections
Anaerobic bacterial infections
Diagnosis of spontaneous bacterial peritonitis
Abdominal access techniques used in laparoscopic surgery
Pathophysiology and prevention of peritonitis in continuous peritoneal dialysis
Fungal peritonitis in continuous peritoneal dialysis
Spontaneous bacterial peritonitis variants
Diagnosis of peritonitis in peritoneal dialysis
Overview of Klebsiella pneumoniae infection
Antibiotic prophylaxis for gastrointestinal endoscopic procedures
Diagnosis and evaluation of patients with ascites
Pathogenesis of spontaneous bacterial peritonitis
Infections of central nervous system shunts and other devices
Medical management of Crohn's disease in adults

Søk: Cholangitis antibiotics
De mest relevante treffene (ikke med i RefMan-basen):
Acute cholangitis
Antibiotic prophylaxis for gastrointestinal endoscopic procedures
Post-ERCP septic complications
Treatment options for locally advanced cholangiocarcinoma
Treatment of primary sclerosing cholangitis
Assessing surgical risk in patients with liver disease

Biliary atresia
Endoscopic stenting for malignant pancreaticobiliary obstruction
Clinical manifestations and diagnosis of primary sclerosing cholangitis
Pylephlebitis
Percutaneous transhepatic cholangiography
Percutaneous transhepatic cholangioscopy
Aeromonas infections
Acute appendicitis in adults: Management
Laparoscopic cholecystectomy: Techniques
Nonimmunologic complications of liver transplantation
Overview of control measures to prevent surgical site infection
ERCP in children: Technique, success and complications
Oriental cholangiohepatitis
Liver flukes: Fascioliasis
Infections due to the Streptococcus anginosus group

Søk: Cholecystitis antibiotics
De mest relevante treffene (ikke med i RefMan-basen):
Treatment of acute cholecystitis
Clinical features and diagnosis of acute cholecystitis
Acalculous cholecystitis
Overview of control measures to prevent surgical site infection
Laparoscopic cholecystectomy: Techniques
Endoscopic stenting for malignant pancreaticobiliary obstruction
Nonsurgical therapies for localized hepatocellular carcinoma: Transarterial embolization, radiotherapy, and radioembolization
Acute cholangitis
Post-ERCP septic complications
Management of fever in sickle cell disease
Acute appendicitis in children: Management
Aeromonas infections
Cryptosporidiosis
Pathophysiology and prevention of peritonitis in continuous peritoneal dialysis
Strategies to reduce postoperative pulmonary complications
Treatment options for locally advanced cholangiocarcinoma
Management of pregnant women undergoing nonobstetric surgery
Gallstone ileus
Non-access related infections in chronic dialysis patients

Søk i: Best Practice
Dato: 03.03 2011
Filter: Ingen
Antall treff: 3
Søk: Cholecystitis antibiotics
Cholangitis antibiotics
Peritonitis antibiotics

(Treffene er ikke med i RefMan-basen)

Cholecystitis

mild (grade I): stable without signs of perforation/gangrene
- supportive care
- oral antibiotics
- non-steroidal anti-inflammatory drug (NSAID)
- early laparoscopic cholecystectomy
- percutaneous cholecystostomy tube

moderate (grade II): stable without signs of perforation/gangrene
- supportive care
- intravenous antibiotics
- non-steroidal anti-inflammatory drug (NSAID)
- early cholecystectomy or cholecystostomy with delayed cholecystectomy

Ascending cholangitis

Treatment details
- Acute
- all patients
  - intravenous antibiotics + intensive medical management
  - biliary decompression: non-operative
  - lithotripsy
  - opioid analgesics
  - biliary decompression: surgical

Spontaneous bacterial peritonitis

Treatment details
- Acute
- sepsis, encephalopathy, or GI bleeding
  - empiric intravenous antibiotics
  - responsive after 48 hours
    - possible switch to oral antibiotics
  - unresponsive or deteriorating
    - broadened antibiotic coverage
  - with renal dysfunction

albumin
without sepsis, encephalopathy, or GI bleeding
empiric oral antibiotics
large-volume paracentesis (LVP)

Søk i: Clinical Evidence
Dato: 03.03 2011
Filter: Ingen
Antall treff: : 0 - kun treff på sporadiske tekstord
Søk: Cholecystitis antibiotics
Cholangitis antibiotics
Peritonitis antibiotics

Søk i: G-I-N
Dato: 03.03 2011
Filter: Ingen
Antall treff: 6
Søk: Cholecystitis OR Cholangitis OR Peritonitis

(Treffene ER inkludert i RefMan-basen)

Søk i: TRIP+
Dato: 03.03 2011
Filter: Ingen
Antall treff: 20
Søk: (Cholecystitis OR Cholangitis OR Peritonitis) AND antibiotic*

(Treffene ER inkludert i RefMan-basen)

Søk i: NHS Evidence - National Library of Guidelines
Dato: 03.03 2011
Filter: Ingen
Antall treff: 8
Søk: Cholecystitis OR Cholangitis OR Peritonitis

Treffene er ikke inkludert i RefMan. Følger her:
EASL clinical practice guidelines on the management of ascites, spontaneous bacterial peritonitis, and hepatorenal syndrome in cirrhosis
Publisher: European Association for the Study of the Liver
Publication Type: Care Guideline
Publication Date: 04 Aug 2010
View detail
EASL clinical practice guidelines on the management of ascites, spontaneous bacterial peritonitis, and hepatorenal syndrome in cirrhosis

Drugs affecting intestinal secretions
Publisher: British National Formulary for Children
Publication Type: Care Guideline
Publication Date: 27 Jul 2010
View detail
For the full text enter BNF HERE: ATHENS username and password required

Single-incision laparoscopic cholecystectomy
Publisher: NICE
Publication Type: Care Guideline
Publication Date: 26 May 2010
View detail
Single-incision laparoscopic cholecystectomy

Diagnosis and management of primary sclerosing cholangitis
Publisher: American Association for the Study of Liver Diseases
Publication Type: Care Guideline
Publication Date: 01 Feb 2010
View detail
Diagnosis and management of primary sclerosing cholangitis

EASL clinical practice guidelines: management of cholestatic liver diseases
Publisher: European Association for the Study of the Liver
Publication Type: Care Guideline
Publication Date: 01 Jun 2009
View detail
EASL clinical practice guidelines: management of cholestatic liver diseases

Cholecystitis - acute
Summary: This CKS topic covers the diagnosis and management of acute cholecystitis in adults presenting in primary care. This CKS topic does not cover the management of cholangitis or other causes of right upper quadrant pain.
Publisher: CKS

Publication Type: Care Guideline
Publication Date: 08 Sep 2008
Source: Clinical Knowledge Summaries
View detail
Click here to go to the complete record

Diverticular disease and diverticulitis
Summary: This CKS topic covers the management of diverticulosis (asymptomatic diverticula), diverticular disease (diverticula with symptoms), and diverticulitis (inflamed or infected diverticula) in adults. This CKS topic does not cover the management of complications including fistula, abscess, perforation, peritonitis, obstruction, or haemorrhage.
Publisher: CKS
Publication Type: Care Guideline
Publication Date: 17 Mar 2008
Source: Clinical Knowledge Summaries
View detail
Click here to go to the complete record

American Gastroenterological Association Institute medical position statement on the use of gastrointestinal medications in pregnancy
Publisher: American Gastroenterological Association
Publication Type: Consensus statement
Publication Date: 01 Jul 2006
View detail
American Gastroenterological Association Institute medical position statement on the use of gastrointestinal medications in pregnancy

Søk i: National Guideline Clearinghouse
Dato: 03.03 2011
Filter: Ingen
Antall treff: 25
Søk: (Cholecystitis OR Cholangitis OR Peritonitis) AND antibiotic*

Treffene er ikke inkludert i RefMan-basen, Følger her:

1.	Diagnosis and management of complicated intra-abdominal infection in adults and children: guidelines by the Surgical Infection Society and the Infectious Diseases Society of America. 2003 (revised 2010 Jan 15). NGC:007597 Infectious Diseases Society of America - Medical Specialty Society; Surgical Infection

Society - Professional Association

2. World Gastroenterology Organisation Global Guideline: inflammatory bowel disease: a global perspective. 2009 Jun. NGC:007471
World Gastroenterology Organisation - Medical Specialty Society.

3. Antibiotic prophylaxis for GI endoscopy. 2003 Oct (revised 2008 May). NGC:006611
American Society for Gastrointestinal Endoscopy - Medical Specialty Society

4. AGA Institute medical position statement on acute pancreatitis. 2007 May. NGC:005792
American Gastroenterological Association Institute - Medical Specialty Society

5. American Gastroenterological Association Institute medical position statement on the use of gastrointestinal medications in pregnancy. 2006 Jul. NGC:005090
American Gastroenterological Association Institute - Medical Specialty Society.

6. Practice parameters for sigmoid diverticulitis. 2000 (revised 2006 Jul). NGC:005611
American Society of Colon and Rectal Surgeons - Medical Specialty Society.

7. SAGES guidelines for the clinical application of laparoscopic biliary tract surgery. 1990 (updated 2010 Jan). NGC:007855
Society of American Gastrointestinal and Endoscopic Surgeons - Medical Specialty Society

8. Management of adult patients with ascites due to cirrhosis: an update. 1998 Jan (revised 2009 Jun). NGC:007373
American Association for the Study of Liver Diseases - Private Nonprofit Research Organization.

9. Pelvic inflammatory disease. Sexually transmitted diseases treatment guidelines 2006. 1993 (revised 2006 Aug 4). [NGC Update Pending] NGC:005189
Centers for Disease Control and Prevention - Federal Government Agency [U.S.].

10. Quality indicators for endoscopic retrograde cholangiopancreatography. 2006 Apr. NGC:004967
American College of Gastroenterology - Medical Specialty Society; American Society for Gastrointestinal Endoscopy - Medical Specialty Society.

11. Sexual and reproductive health for individuals with inflammatory bowel disease. 2003 Jul (revised 2009 Jun). NGC:007889
Faculty of Sexual and Reproductive Healthcare - Professional Association.

12. Tularaemia. 2004 Aug 12 (revised 2008 Apr 27). NGC:006605
Finnish Medical Society Duodecim - Professional Association.

13. Guidelines for prevention and treatment of opportunistic infections in HIV-infected adults and adolescents. Recommendations from CDC, the National Institutes of Health, and the HIV Medicine Association of the Infectious Diseases Society of America. 2004 Dec 17 (revised 2009 Apr 10). NGC:007188

Centers for Disease Control and Prevention - Federal Government Agency [U.S.]; Infectious Diseases Society of America - Medical Specialty Society; National Institutes of Health (U.S.) - Federal Government Agency [U.S.].

14. ACR Appropriateness Criteria® percutaneous biliary drainage in benign and malignant biliary obstruction. 1996 (revised 2008). NGC:007766
American College of Radiology - Medical Specialty Society.

15. Practice parameters for the surgical management of Crohn's disease. 2007 Nov. NGC:006461
American Society of Colon and Rectal Surgeons - Medical Specialty Society.

16. NKF-KDOQI clinical practice guidelines for peritoneal dialysis adequacy: update 2006. 1997 (updated 2006 Jul). NGC:005330
National Kidney Foundation - Disease Specific Society

17. ACR Appropriateness Criteria® percutaneous catheter drainage of infected fluid collections. 1996 (revised 2009). NGC:007767
American College of Radiology - Medical Specialty Society.

18. World Gastroenterology Organisation practice guideline: esophageal varices. 2008 Jun. NGC:006695
World Gastroenterology Organisation - Medical Specialty Society.

19. Surviving sepsis campaign: international guidelines for management of severe sepsis and septic shock: 2008. 2004 (revised 2008 Jan). NGC:006316
Society of Critical Care Medicine - Professional Association.

20. Guidelines for the management of colorectal cancer. 2001 (revised 2007). NGC:005904
Association of Coloproctology of Britain and Ireland - Medical Specialty Society.

21. Diagnosis and management of primary sclerosing cholangitis. 2010 Feb. NGC:007676
American Association for the Study of Liver Diseases - Private Nonprofit Research Organization.

22. NKF-KDOQI clinical practice guidelines for vascular access: update 2006. 1997 (updated 2006 Jul). NGC:005331
National Kidney Foundation - Disease Specific Society.

23. Use of tumor markers in clinical practice: quality requirements. 2009. NGC:007159
National Academy of Clinical Biochemistry - Professional Association.

24. Treatment of Aspergillosis: clinical practice guidelines of the Infectious Diseases Society of America. 2000 Apr (revised 2008 Jan). NGC:005975
Infectious Diseases Society of America - Medical Specialty Society.

25. Detoxification and substance abuse treatment: co-occurring medical and psychiatric conditions. 2006. NGC:004933
Substance Abuse and Mental Health Services Administration (U.S.) - Federal Gov-

ernment Agency [U.S.].

Søk i: Helsebibliotekets retningslinjedatabase
Dato: 03.03 2011
Filter: Ingen
Antall treff: 4
Treffene er ikke med i RefMan-basen

Søk: Peritonitt – 1 treff:
VEILEDER VED OBDUKSJON AV FOSTRE OG BARN
... man se etter mikroorganismer, også på serosasiden (obs. peritonitt) og i kar. Spesialfarger kan være relevante. Når ... ...

Søk: Cholangitt og kolangitt – 2 treff:
4.2 IBD og kreft - Nasjonalt handlingsprogram med retningslinjer for diagnostikk, behandling og oppfølging av kreft i ...
... i slekt og samtidig forekomst av primær skleroserende kolangitt (evidensgrad C). Foci med dysplasi ved ulcerøs kolitt ... ...

Klinisk hemokromatose: Sykdom (påvist organskade) som skyldes patologisk jernopphoping.
... Mb. Wilson, alkoholisk leversykdom, medikament-betinget leveraffeksjon, skleroserende cholangitt, non-alkoholisk steatohepatitt. 3) Ved svært høyt serum ... ...

Søk: Cholecystitt og Kolecystitt – 1 treff:
Infeksjoner i urinveiene - Retningslinjer for antibiotikabruk i primærhelsetjenesten
... og antall leukocytter er som regel forhøyet. Differensialdiagnoser Kolecystitt: høyresidige abdominalsmerter med trykkømhet over galleblæren. Appendisitt: trykk- ... ...