Clinical review

Extracts from "Clinical Evidence"

Pelvic inflammatory disease

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Interventions

Unknown effectiveness:

Empirical antibiotic treatment

Different durations of antibiotic treatment

Oral versus parenteral antibiotics

Background

Definition Pelvic inflammatory disease (PID) is inflammation and infection of the upper genital tract in women, typically involving the fallopian tubes, ovaries, and surrounding structures.

Incidence/prevalence The exact incidence of PID is unknown because the disease cannot be diagnosed reliably from clinical symptoms and signs.[1–3] Direct visualisation of the fallopian tubes by laparoscopy is the best single diagnostic test, but it is invasive and not used routinely in clinical practice. PID is the most common gynaecological reason for admission to hospital in the United States, accounting for 49 per 10 000 recorded hospital discharges. However, since most PID is asymptomatic, this figure almost certainly underestimates true prevalence.[1 4]

Aetiology/risk factors Factors associated with PID mirror those for sexually transmitted infections: young age, reduced socioeconomic circumstances, African or Afro-Caribbean ethnic origin, lower educational attainment, and recent new sexual partner.[2 5 6] Most cases seem to result from ascending infection from the cervix. Initial epithelial damage caused by bacteria (especially *Chlamydia trachomatis* and *Neisseria gonorrhoeae*) allows the opportunistic entry of other organisms. Isolates from the upper genital tract are polymicrobial, including *Mycoplasma hominis* and anaerobes.[7] The spread of infection to the upper genital tract may be influenced by vaginal douching, instrumentation of the cervix, and use of contraceptives.[8–11]

Prognosis PID has high morbidity; about 20% of affected women become infertile, 20% develop chronic pelvic pain, and 10% of those who conceive have an ectopic pregnancy.[2] We found no placebo controlled trials of antibiotic treatment. Uncontrolled observations suggest that clinical symptoms and signs resolve in an appreciable number of untreated women.[12] Repeated episodes of PID are associated with a fourfold to sixfold increase in the risk of permanent tubal damage.[13]

Aims To alleviate the pain and systemic malaise associated with infection; to achieve microbiological cure; to prevent development of permanent tubal damage with associated sequelae, such as chronic pelvic pain, ectopic pregnancy, and infertility; and to prevent the spread of infection to others.

Outcomes Incidence and severity of acute symptoms and signs; microbiological cure of the upper genital tract; incidence of chronic pelvic pain, ectopic pregnancy, and infertility; rate of transmission to others.

Methods

Clinical Evidence update search and appraisal May 2000.

Question: Should suspected PID be treated empirically or should treatment be delayed until results of microbiological investigations are known?

Option: Empirical treatment with antibiotics

Summary We found no evidence to support or refute empirical treatment for suspected PID.

Benefits

We found no systematic review or randomised controlled trials (RCTs) comparing empirical treatment with delayed treatment.

Harms

We found no reliable evidence on harms of empirical treatment.

Comment

Because there are no reliable clinical diagnostic criteria for PID, early empirical treatment is common.[3] The positive predictive value of a clinical diagnosis is 65-90% compared with laparoscopy.[1–3] The absence of infection from the lower genital tract, where samples are usually taken, does not exclude PID[2] and so may not influence the decision to treat.

Question: How do different antimicrobial regimens compare?

Summary One systematic review has found that several regimens of parenteral followed by oral antibiotic treatment are effective in resolving the acute symptoms and signs associated with PID (table). We found no good evidence on the optimal duration of treatment, or comparing oral versus parenteral treatment.

Benefits

We found one systematic review (search dates 1966 to 1992),[14] which was subsequently updated (search date 1992 to 1997).[15] These reviews identified 26 studies of 16 antimicrobial regimens in 1925 women with PID. The identified studies included case series, and it is not possible from the aggregated data published in the reviews to ascertain how many studies were RCTs. Inclusion criteria were a diagnosis of PID (clinical, microbiological, laparoscopic, or by endometrial biopsy) and microbiological testing for *C trachomatis* and *N gonorrhoeae*. The reviews found antibiotics to be effective in relieving the symptoms associated with PID, with clinical and microbiological cure rates of 90–100% (table). **Duration of treatment:** The duration of treatment was not addressed, although the most common treatment period was 14 days. **Oral versus parenteral treatment:** The reviews did not analyse outcomes by oral or parenteral route of administration. Most regimens started with parenteral treatment and continued with oral treatment at different points. Two RCTs (n=249, n=72) compared oral ofloxacin against parenteral cefoxitin and doxycycline. The trials found no significant difference in cure rates among groups (clinical cure rates about 95% for all treatments).[16 17]

Harms

The harms associated with treatment were not specifically addressed by the systematic reviews.[14 15] In two RCTs reporting adverse effects, withdrawal from treatment was uncommon (2/20 for doxycycline/metronidazole; 0/20 for perfloxacin/metronidazole; 0/16 for ciprofloxacin).[18 19]

Comment

We found little evidence about long term sequelae of PID, adverse effects of treatment, treatment of PID of differing severity, the effect of ethnic origin, or the relevance of tracing sexual contacts. The risks of tubal occlusion and subsequent infertility relate to the severity of PID before the start of treatment,[20] and clinical improvement may not translate into preserved fertility.[21 22]

Competing interests: None declared.

Cure rates for antibiotic treatment of acute pelvic inflammatory disease. Aggregated data from systematic reviews of randomised controlled trials and case series[14 15]

Drug regimen	No of studies	No of women	Clinical/microbiological cure rate (%)
Inpatient treatment (initially parenteral, switching to oral)			
Clindamycin + aminoglycoside	11	470	91/97
Cefoxitin + doxycycline	8	427	91/98
Cefoxitin + doxycycline	31	174	95/100
Ceftizoxime + tetracycline	1	18	88/100
Cefotaxime + doxycycline	1	19	94/100
Ciprofloxacin	4	90	94/96
Ofloxacin	1	36	100/97
Sulbactam/ampicillin + doxycycline	1	37	95/100
Amoxicillin/clavulanic acid	1	32	93/—
metronidazole + doxycycline	2	36	75/71
Outpatient treatment (oral unless indicated otherwise)			
Cefoxitin (intramuscular) + probenecid + doxycycline	3	219	89/93
Ofloxacin	2	165	95/100
Co-amoxiclav	1	35	100/100
Sulbactam/ampicillin	1	36	70/70
Ceftriaxone (intramuscular) + doxycycline	1	64	95/100
Ciprofloxacin + clindamycin	1	67	97/94

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Endpiece

A politician

A politician is an animal which can sit on a fence and yet keep both ears to the ground.

H L Mencken,
American editor, author, and critic, 1880-1951