

Penicillin resistant Gonococci at Q.E.C.H.

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Introduction:

Gonococci which are resistant to high doses of penicillin are a major problem in clinical venereology. In most cases resistance is related to the production of the enzyme beta-lactamase which destroys penicillin. Such beta-lactamase producing gonococci were first isolated in 1976 among patients in South East Asia and West Africa. Since then they have been found in many other countries including most of central and eastern Africa. In Malawi clinical impression and sensitivity testing on a few isolates had indicated that penicillin resistant strains were present but their true prevalence was unknown. A survey of patients presenting with purulent urethritis was therefore undertaken to investigate this further.

Materials and methods:

The study was performed in January, 1986. Consecutive male patients presenting with purulent urethritis to the OPD II of QECH had swabs taken from the anterior urethra. These were immediately plated out on gonococcal selective media (G.C. agar (Oxoid) containing vancomycin, colistin and trimethoprim.) All cultures were incubated for 24 hours at 37°C in a candle jar. Bacteria thus isolated which were identified as gonococci by colonial morphology, gram stain and oxidase production were then subcultured and tested for 1) penicillin sensitivity by disc with a sensitive strain defined as that giving a zone of growth inhibition of 20mm or more: 2) beta-lactamase production by the chromogenic cephalosporin technique. (Nitrocefin, Glaxo).

A few strains were also tested for sensitivity to ampicillin/clavulanic acid Augmentin (Beecham) when these became available towards the end of the survey.

Results:

Forty-eight isolates were confirmed as gonococci. Of these 35 were resistant to penicillin and all but one of these was a beta-lactamase producing strain. All isolates which were sensitive to penicillin were negative for beta-lactamase production. Therefore the prevalence of penicillin resistance was 72% and the vast majority of this appeared to be mediated by beta-lactamase production.

All three penicillin resistant strains tested against augmentin were highly sensitive.

Discussion:

Although this was a relatively small survey it is clear that the prevalence of penicillin resistance amongst gonococci isolated in Blantyre is already very high. While some strains with only a modest degree of penicillin resistance may be cured using conventional treatment and others will resolve spontaneously, this study would predict an apparent clinical failure rate of at least 50% with intramuscular procaine penicillin 4.8 megaunits and oral probenidic 1 gram. (No attempt was made to assess cure rate in this study). If these data are confirmed in larger studies it would be hard to justify continuing with the high dose penicillin and probenidic as first line treatment.

Alternative first line treatments must start to be considered. Currently available alternatives such as tetracycline and bactrim both require multiple dosing with inevitable problems of patient compliance. The relative cost of alternative treatments are shown below. (Approximate price extracted from British National Formulary shown in pounds sterling)

Single dose injectable:	Aprox Price
Penicillin 4.8 megaunits + Probenidic 1 Gram + Augmentin 1 tab	.75
Spectinomycin 2 grams	5
Cefuroxime 1.5 grams	5
Single dose oral:	
Acrosoxacin 300 mg.	2
Multiple dose oral:	
Tetracycline 250 mg qid for seven days	.30
Co-trimoxazole 4 tabs b.d. for two days	1.60

The addition of a single tablet of Augmentin to traditional treatment with penicillin and probenidic has been shown to be very successful in eradicating beta-lactamase producing gonococci. Trials with this regimen in Kenya achieved a cure rate of 98%. This regimen would seem to be least expensive of the single dose alternatives.

It is hoped to launch a study in the near future to investigate further the sensitivity patterns of gonococci so that a rational policy for the first line treatment of gonorrhoea can be formulated. However it must be remembered that no venereal disease can be successfully managed by antibiotics alone unless strenuous efforts are taken to trace and treat the patients sexual partner.

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Post-operative wound infection in a developing country

A prospective survey at the Q.E.C.H., Blantyre, Malawi.

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Summary:

A prospective survey of post-operative wound infection rates was undertaken at the Queen Elizabeth Central Hospital, Blantyre, Malawi over a three-month period from April to June, 1985. The methods whereby wound sepsis data were obtained are presented. The results show an overall infection rate of 25.8% and that for clean wounds of 14.8%. These figures are relatively unfavourable and an attempt is made to explain this. The limitations of this study are discussed, as is the importance of continued sepsis surveillance with particular reference to the use of antibiotic prophylaxis.

Introduction:

The Queen Elizabeth Central Hospital in Blantyre is one of two central government teaching hospitals in Malawi and provides specialist services for over three million people. The surgical department is run by four general-surgical specialists, a government medical officer on rotation, one clinical officer and several trainee medical assistants. There are 220 beds, and as many floor-spaces, in four large "nightingale"-type wards; male and female general-, orthopaedic-, and paediatric-surgery. Here the pre-operative preparation and all the post-operative care is done. There is no recovery or intensive-care unit. There are two main theatres and a plaster-room (which is also used for minor infected cases). Patients are admitted through the Casualty department or Out-patient clinics, and many are referred from the various District Hospitals and Health centres. Although the health-services are free, the large distances and everpresent transport problems, together with the belief in traditional African healing result in a positive selection of the

patients reaching the specialist.

The goals of this study were three-fold; first, to record accurately the post-operative wound infection rate during a consecutive three-month period; second, to uncover the determinants influencing wound sepsis in the situation encountered in a developing country; and third, as a pilot-study to examine the feasibility of such clinical research.

Methods and materials:

A standard form was designed on which the information could be recorded concerning patient characteristics at the time of operation, details of the operative procedure performed and the circumstances of wound healing during the post-operative follow-up period.

In the context of this audit, "operation" indicates a procedure in which a skin incision was made and sutured at the same session¹; I+D's, debridements, skin grafts and secondary closures were thus excluded.

Operations were classified into four categories, based on the American National Research Council criteria¹

CLEAN = no infection encountered, no hollow viscus opened.

CLEAN/CONTAMINATED = hollow muscular organ entered with minimal spillage.

CONTAMINATED = inflammation without pus formation, viscus opened with gross spillage of contents, fresh traumatic wound.

DIRTY = pus encountered or perforated viscus found, old traumatic wound.

Burns, oral-, genital-, and peri-anal incisions were excluded². Unfortunately, it was not possible to include the gynaecological and obstetrical operations in this audit.

A wound was considered to be infected if it discharged pus¹ in which case it was opened and drained and where possible a pus swab taken for gram stain, culture and sensitivity.