

CLAVULANIC ACID AND AMOXYCILLIN IN UNCOMPLICATED GONORRHOEA

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Augmentin (Amoxycillin 3 gm combined with 250 mg clavulanic acid) and ampicillin 3.5 gm and 1 gm probenecid orally were evaluated in 50 patients for the treatment of uncomplicated gonorrhoea. Success rates of 80% and 100% were obtained with augmentin and ampicillin with probenecid respectively in non-PPNG strains. None of 4 PPNG strains responded to ampicillin-probenecid. Augmentin in single oral dose cannot be recommended for the treatment of non-PPNG strains in India.

Key words : Gonorrhoea, Augmentin (amoxycillin and clavulanic acid); Ampicillin with probenecid, Treatment.

In south-east Asia, West Africa and several other countries, more than 50% isolates are penicillinase producing *Neisseria gonorrhoeae* (PPNG).^{1,2} From India also, many PPNG strains have been reported.³ Resistance of the strains to spectinomycin wherever this drug is available is also on the increase.⁴ Other injectable drugs like cephalosporins are expensive and generally an oral drug is preferred. Large single oral dose of synthetic penicillin with or without probenecid has been effective in non-PPNG infections. For combating the problem posed by PPNG there are two possible approaches : (1) The development of antimicrobials stable to beta-lactamase, and (2) the search for inhibitors of beta-lactamase. Clavulanic acid isolated from *Streptomyces clavuligerus* is a potent inhibitor of beta-lactamase. Addition of clavulanic acid to amoxycillin is effective in restoring the antibacterial activity of amoxycillin against penicillinase producing strains of *Neisseria gonorrhoeae*.¹ Augmentin is a formulation comprising amoxycillin and the potassium salt of clavulanic acid. Both compounds are well absorbed by the oral route and peak serum concentrations are achieved in 1½

hours. We therefore tried augmentin (amoxycillin 3 gm combined with 250 mg clavulanic acid) and compared it with the efficacy of the standard regimen of ampicillin 3.5 gm and 1 gm probenecid in uncomplicated gonorrhoea.

Materials and Methods

Fifty patients (46 males and 4 females) having urethral/vaginal discharge and dysuria confirmed by smear and/or culture for gonococci were included in the study. They were randomly assigned to two groups : (1) ampicillin 3.5 gm and probenecid 1 gm orally (Schedule A), or (2) augmentin (amoxycillin 3 gm and clavulanic acid 250 mg) orally (Schedule B). Augmentin was procured from Beecham Research Laboratories, UK.

Patients were asked to report again on the 4th and 8th day after treatment. At each visit, improvement in the symptoms and any side effect of the drug were noted. Urethral material was similarly studied by smear and culture in the New York City Medium (with lincomycin, amphotericin B, colistin and trimethoprim). Plates were incubated for 48 hours at 37°C in candle extinction jars. *N. gonorrhoeae* were identified by the colony morphology, oxidation test and sugar utilization tests. *N. gonorrhoeae* isolated were also tested for penicillinase production by the rapid iodometric test.⁶

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Results

In 44 patients, culture for *N. gonorrhoeae* was positive and they were available for at least one follow up. They included 41 males and 3 females. Twenty nine males were treated with schedule A including 4 with PPNG infection. All patients with non-PPNG strains were cured but none with PPNG infection responded to

ampicillin and probenecid. Fifteen patients (12 males, 3 females) received schedule B and 12 (80%) were cured (Table I). None of the failures to amoxycillin and clavulanic acid was due to PPNG strain.

Diarrhoea was seen in 3 and 2 patients treated with augmentin and ampicillin-probenecid respectively.

Table I. Comparative cure rates with 2 regimes in non-PPNG and PPNG infections.

Regimen	Number of patients with				Total
	Non PPNG		PPNG		
	Treated	Cured	Treated	Cured	
A Ampicillin 3 gm and 1 gm probenecid	25	25 (100%)	4	0	29
B Amoxycillin 3 gm with 250 mg clevalanic acid	15	12 (80%)	0	0	15

Comments

In developing countries where the laboratory facilities are not uniformly available and it is difficult to achieve high follow-up rates whether for treatment or evaluation, it is imperative to look for an oral single dose treatment for infections produced by either non-PPNG and PPNG strains. Cure rates varying from 71.4 to 100% have been reported with augmentin by various workers.⁷⁻¹² Though a few workers have reported relatively lower cure rates in PPNG strains,¹¹⁻¹² others consider it to be equally effective in PPNG and non-PPNG infections.¹⁰ Augmentin is equally effective for the treatment of uro-genital and rectal gonorrhoea in both sexes.¹³

We did not find significant advantage with augmentin for the treatment of non-PPNG infections. However, we cannot comment on the efficacy of augmentin in the treatment of PPNG infections as none our patients treated with it had beta-lactamase producing gonococci. We, therefore, feel that augmentin if introduced in our country will not prove to be any better than the regimen presently available. However, two doses given at 4-hour interval⁹ or in combination with probenecid, may be more effective.

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