

Minimum Inhibitory Concentration (MIC) of Penicillin G & Oxytetracycline to Neisseria gonorrhoeae

Principal Investigator: M. Talmage M'cMinn, CPT, MSC

Associate Investigator: Panyasri Benjadol, M.Sc.

OBJECTIVE: To determine the MIC of penicillin G and Oxytetracycline for Neisseria gonorrhoeae in Thailand.

DESCRIPTION: Randomly selected isolates of N. gonorrhoeae were used to determine the minimum inhibitory concentrations of potassium penicillin G and oxytetracycline for those strains. The antibiotic was mixed with Thayer—Martin chocolate agar without antibiotics and slightly turbid suspensions of the selected strains in brain heart infusion broth were placed on the agar surface with platinum loops.

Isolates were selected from promiscuous females seen at the Ban Chiwi VD Control Clinic in Bangkok, from the US Army Hospital in Bangkok, and from the Thai Army Hospital in Bangkok. All isolates from the Ban Chiwi Clinic were from females, all from the US Army Hospital were males, and all but one from the Thai Army Hospital were from male patients. None of the strains selected were specifically picked from so called 'resistant' cases. Tables 1 and 2 present the MIC's of the two drugs tested to N. gonorrhoeae.

DISCUSSION: It is noted that the World Health Organization indicates that "less sensitive strains" of N. gonorrhoeae are inhibited by concentrations of penicillin ranging from 0.05 to 0.125 IU/ml. Our study indicates that 87.2% of the few strains studied in this laboratory demonstrate a decreased sensitivity to penicillin. A study done in 1968 by the VD Control Laboratory of the Thailand Department of Health shows that 47% of 181 strains tested at that time had penicillin MIC's of 0.128 or greater.

This report indicates that the frequency of recovery of "less than sensitive strains" of N. gonorrhoeae is increasing. Prompt, vigorous treatment with adequate serum concentrations of the appropriate antibiotic is indicated with patients infected with gonorrhoea. Cultures of suspected material should be accomplished and antibiotic sensitivities carefully determined in order to ensure use of the proper drug.

Table 1.

Minimum Inhibitory Concentrations of penicillin to randomly selected strains of Neisseria gonorrhoeae.

	Isolates from :		
	Ban Chiwi 27 patients	US Army Hospital 34 patients	Thai Army Hospital 34 patients
	<u>unit/ml</u>	<u>unit/ml</u>	<u>unit/ml</u>
Range	0.1-0.8	0.05-1.6	0.1-1.0
Mean	0.34	0.85	0.6
Median	0.2	0.8	0.6

Table 2.

Minimum Inhibitory Concentrations of oxytetracycline to randomly selected strains of Neisseria gonorrhoeae.

	Isolates from :		
	Ban Chiwi 27 patients	US Army Hospital 34 patients	Thai Army Hospital 34 patients
	<u>mcg/ml</u>	<u>mcg/ml</u>	<u>mcg/ml</u>
Range	0.2-1.6	0.8-2.4	0.8-3.6
Mean	0.86	1.3	1.5
Median	0.8	1.2	1.2