Thesis Title : Drug Resistance of Haemophilus ducreyi

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ABSTRACT

Chancroid is one of the common sexually transmitted disease (STD) found in Thailand and other tropical countries. The causative agent of this disease is H. ducreyi. In Thailand, the diagnosis of chancroid is still based on clinical appearance which may be confused with other STD manifest by genital ulcers. In the past treatment of chancroid was not complicated since the organism was susceptible to common antimicrobial agents in used such as ampicillin, tetracycline and sulfonamides. In recent years the increasing resistance strains of H. ducreyi to those antimicrobial agents were reported. Thus cultivation and antimicrobial susceptibility test of this organism become more important. The purpose of this study is to evaluate, 4 media; Mueller Hinton agar with fetal calf serum and vancomycin (MBV), SNG's medium, chocolate agar (CA) and chocolate agar with vancomycin (CAV) for their suitability in primary isolation of H. ducreyi. The antimicrobial susceptibility pattern of these strains were determined against 11 antimicrobial agents. In addition, the incidence of beta lactamase producing strains and their types were determined.

Forty percent of H. ducreyi were isolated from 240 patients who were clinically diagnosed of chancroid. Ninety three strains (38%) of H. ducreyi were isolated from these patients by MBV which was proved to be the best but most expensive medium for cultivation of H. ducreyi. All strains were resistant to ampicillin by producing beta-lactamase enzyme, approximately 92% of the strains were resistant to sulfamethoxazole and 99% of strain were resistant to tetracycline. Thirty two percent were resistant to trimethoprim. All isolates were susceptible to chloramphenicol, ceftriaxone, erythromycin and the fluorinated quinolones; ciprofloxacin, norfloxacin, ofloxacin and pefloxacin.

Beta-lactamase enzymes produced by 37 strains of H. ducreyi were determined for their isoelectric point. All of them focussed at the isoelectric point (pI) 5.4 which is idicative of plasmid-mediated beta-lactamase type TEM-1. From our finding and information from other reports it is most likely that the resistance of H. ducreyi to ampicillin and tetracycline is mediated by gene on the same transposon. The sulfamethoxazole resistance of H. ducreyi is also likely mediated by the same plasmid widely found in gram negative bacteria. In brief, the spreading of the genes coded for ampicillin, tetracycline and sulfonamide resistance in H. ducreyi may have origin from enteric bacteria.