

CHAPTER VI

SUMMARY

The study on the incidence of MRSA carriers and the use of plasmid profile analysis as the epidemiologic marker for MRSA infections were performed. For the incidence studied it was shown that in healthy personnel group, only medical personnel was one of the reservoir of both MRSA in nasal cavities and hands. MRSA was found to be one of the common causative agents of nosocomial infection, particularly burn infections because 38 out of 51 patients was infected by MRSA. In comparison with the other wound infected patients, only 11 out of 101 patients in this group carried MRSA.

Plasmid profile was shown to be very useful in tracing MRSA transmission while the antibiogram was proved to be invaluable for typing of MRSA. However, the antimicrobial susceptibility test provided the information on the drug of choice for MRSA infections which was vancomycin. The alternative drugs had shown to be clindamycin, neomycin and trimethoprim-sulfamethoxazole. For the plasmid profile analysis, the data showed that profiles of MRSA isolated from burn patients at Siriraj Hospital differed from those found at the other two

hospitals. This could be explained by the characteristic of the burn unit at each individual hospital. At Siriraj Hospital there was a special burn units while at the other two hospitals, the patients stayed in semi-sterile ward together with other type of patients with wound infections. After the analysis of plasmid profile of MRSA isolated at Siriraj Hospital, the result indicated that medical personnel and patients carried the same profile of MRSA in both nasal cavities and hands. This suggested that the possible route of transmission of MRSA between medical personnel to patients and patients to patients might be hand contact. For Bhumipol Adulyadej Hospital and Police General Hospital, although the number of study population were too low to be conclusive, but these patients carried MRSA with the same plasmid profiles. In addition, MRSA of 4 different plasmid profiles seem to play pathogenic role in the development of wound infection in either admitted patients or non-admitted patients.

The informations obtained in this study are very useful for the epidemiologic study of MRSA. Firstly, the incidence of MRSA carrier was shown and it was indicated that medical personnel was the important source among the healthy personnel. Secondly, the transmission of MRSA might occur by the route of hand contact between medical personnel and burn patients and between patients to patients; it was suggested that precautions on hand cleaning would be essential for controlling the spread of

this infecting organism. Thirdly, the simple technique of plasmid profile used in this study should be very useful tool for epidemiology study because it required no special expertise, and no particularly costly reagents. It was shown to be very good technique with good discriminatory power and reproducible. However, for the strains with no or few plasmid DNA which could possibly be unable to type, the restriction enzyme digestion technique might be used as the more sensitive procedure.