CHAPTER VI

CONCLUSIONS

Efficacious treatment of infectious diseases begins with selection of the antimicrobial; however, it is likely that the patient will not be cured unless the dosage regimen and route of administration of the drugs are appropriate. Since aminoglycosides have a narrow therapeutic serum concentration range, it is important to use the most accurate dosing method to achieve the desired response and avoid toxicity. In this study, a computer-based consultation program to individualize dosage regimen of gentamicin, one of the most currently used aminoglycosides, for patients was developed.

This microcomputer-based method reduces the chances for error in empiric dosing recommendations of the available nomograms, calculates precise doses based on measured serum levels, and allows the user to view the results of his dosing efforts on the screen with the touch of a single command key. In addition to its dosing information, the program provides another recommendation about blood sampling times for creatinine and gentamicin levels. Furthermore, this software enables the user to print consult sheets consist of all patient data together with dosage recommendation and recommended blood sampling times. The program also provides extensive disk storage capabilities for patient files, with immediate access to facilitate updating and dosing regimen changes as they occur.

The pharmacist's desire to assist physicians in the appropriate dosing and monitoring of aminoglycosides was the foundation for the development of this pharmacokinetic software program. Without a formalized clinical pharmacokinetic service, this program enables clinicians to recall pertinent pharmacokinetic variables, perform intricate mathematical calculations, design individualized dosage regimens, evaluate an existing dosage regimen, predict serum gentamicin concentrations, and provide for storage of patient files. The more data accumulated, the more refined the starting point. As known pharmacokinetic parameters of Thai populations are incorporated into the software, the empiric dosing recommendations are substantially closer to the actual doses required by the Thai patients. As well as improving the quality of aminoglycoside prescribing in the hospital, this program is expected to serve as a useful tool for the pharmacy staff prefessional satisfaction from their expanded clinical roles. Finally, as compliance with the use of computer-based consultation program expands, this program would be a model for customizing dosage regimens of other therapeutic agents for individual patients.