CHAPTER V

CONCLUSION

In this study of twenty-seven patients with mild to moderate congestive heart failure, no significant difference between the means of absorption, distribution, and elimination rate constant among the three treatment groups of patients was found at the 95% level of confidence. The mean value (±SD) of digoxin pharmacokinetic parameters of Thai patients i.e. elimination rate constant, distribution rate constant, and absorption rate constant calculated from serum digoxin concentrations by RSTRIP program were 0.01±0.02, 0.5±0.28, and 1.73±2.43(/hr) respectively.; and the mean elimination half-life were 137.53±100.91(hr). The significant differences existed among the mean value of digoxin volume of distribution estimated from three different methods at the 95% level of confidence. The correlation of creatinine clearance and digoxin clearance calculated by the investigator was poor (r=-0.29). Further collection of the data was required before any conclusion could be made.

The elimination half life calculated from serum digoxin levels (mean± SD=137.53±100.91 hr) were longer than those calculated from foreign equations(mean ±SD=63.54±6.35 hr). Part of the reason might cause by, in this study the patients received multiple oral dose of digoxin ,therefore the serum concentration of digoxin after 24 hours could not be obtained. Since digoxin has a long half life and requires a long interval for serum concentration declining, the concentration in the last sample obtained might not decline enough to get an accurate estimation of elimination rate constant.

From the results, both captopril and enalapril did not show a significant effect or even a suggestive trend for any interaction with steady-state digoxin pharmacokinetics. So there is no need for dosage adjustment of digoxin in the concurrent use with captopril or enalapril. Although no evidence of interaction was found in this study, it seems important to note that the interpatient variation is large. Further studies in larger groups of patients will be needed to fully assess the risks.

The percentage of the patients whose serum levels were in the desirable therapeutic range was 29.6% [0.8-2.0 ng/ml], and 62.96% in the range of 0.5-2.5 ng/ml. Determination of the serum digoxin concentration may be helpful in making a dosage regimen decision for further treating with digoxin. For serum digoxin monitoring and calculation of individualized pharmacokinetic parameters, two sample points of digoxin levels obtained after 6 hours since the last dose (at about 8 and 12 hours after dose) had tendency to be the best method for parameter estimation. If only one serum concentration could be obtained, the sampling time for the best prediction use is at about 8 hours after the administration of digoxin.