CHAPTER I

INTRODUCTION

Diabetes mellitus is still a major illness affecting the quality of life of a number of people. Patients have to control their blood glucose levels within the normal limit. Oral hypoglycemic agents are the mainstay to reduce blood glucose level in non-insulin dependent diabetic (type II) patients. Among agents used so far, glibenclamide is the popular one. It is a second generation of sulfonylurea oral hypoglycemic agent which differs from the former or first generation drugs in terms of side effects, drug interactions and potency. Glibenclamide causes fewer side effects and drug interactions. A daily glibenclamide dose of 5 mg. controls blood glucose concentration to approximately the same degree as daily dose of acetohexamide 500-750 mg., chlorpropamide 250-375 mg. or tolbutamide 1-1.5 gm. (McEvoy ed., 1989). Glibenclamide tablets are available in the market through a variety of trade names by different manufacturers. One is the innovator's product and others are locally manufactured brands. The formulations and manufacturing processes of the tablets may influence the bioavailability of the drug so that the bioequivalence of these glibenclamide tablets should be evaluated.

This study is conducted to compare the bioavailability of glibenclamide tablets commercially available in Thailand and to investigate the pharmacokinetics of glibenclamide after oral administration in healthy volunteers.

Objectives

1. To compare the bioavailability of the locally manufactured brands of glibenclamide tablets to that of the innovator's product.

2. To compare the in vitro quality of the locally manufactured brands of glibenclamide tablets to that of the innovator's product according to the official pharmacopoeial requirement.

3. To investigate the correlation between the in vitro parameters (disintegration time and dissolution rate constant) and the in vivo parameters (C_{max}, t_{max} and AUC).

Significance of the Study

1. This study will provide the information about the relative bioavailability of glibenclamide tablets commercially available in Thailand compared to the innovator's product which would be useful in the selection of an effective locally made product.

2. This study will provide the pharmacokinetics of glibenclamide in Thai healthy volunteers.

3. When the relationships between the in vitro and the in vivo study were observed, results obtained from the in vitro studies may be used to predict the in vivo bioavailability of the drug.