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Glipizide pharmacokinetics in healthy and diabetic volunteers

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Purpose: Disease state may contribute to alteration on drug pharmacokinetics. The purpose of this study was to determine the effect of non-insulin dependent diabetes mellitus (NIDDM) on the pharmacokinetics of glipizide.

Method: An open, single-dose, parallel design was applied to the study. Glipizide tablet (5 mg) was administered to healthy and diabetic human volunteers after overnight fast. Blood samples were collected, centrifuged and the plasma assayed using a sensitive and validated reverse phase high performance liquid chromatography (RP-HPLC) method. Various pharmacokinetic parameters were computed from the data obtained.

Results: The $AUC_{0-\infty}$ values for healthy and diabetic volunteers was 1878±195 and 1723±138 ng.h/ml respectively; these values were not significantly different ($p > 0.05$). The $t_{1/2}$ for healthy volunteers was 3.04±0.27 h while that for diabetic subjects was 2.98±0.16 h. Clearance for healthy and diabetic volunteers was 0.59±0.06 and 0.64±0.05 ml/min/kg, respectively. All the foregoing and other pharmacokinetic parameters assessed not significantly different when compared for healthy and diabetic volunteers ($p > 0.05$).

Conclusion: Although glipizide showed slightly more rapid clearance from the body of diabetic volunteers than from healthy volunteers, this difference, like those for other pharmacokinetic parameters, was not significant ($p > 0.05$).