عنوان مقاله:

Comparison of pharmacokinetic parameters of ranolazine between diabetic and non-diabetic rats

محل انتشار:

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خلاصه مقاله:

Objective(s): Diabetes mellitus (DM) affects the pharmacokinetics of drugs. Ranolazine is an antianginal drug that is prescribed in DM patients with angina. We decided to evaluate the effect of DM on the pharmacokinetics of ranolazine and its major metabolite CVT-۲۷۳۸ in rats.Materials and Methods: Male rats were divided into two groups: DM (induced by ۵۵ mg/kg Streptozotocin (STZ)) and non-DM. All animals were treated with ۸۰ mg/kg of ranolazine for ۷ continuous days. The blood samples were collected immediately at ۰ (prior to dosing), ۱, ۲, ۳, ۴, ۸, and ۱۲ hr after administration of the ۷th dose of ranolazine. Serum ranolazine and CVT-۲۷۳۸ concentrations were determined using the high-performance liquid chromatography (HPLC) method. Pharmacokinetic parameters were calculated using a non-compartmental model and compared between the two groups.Results: The peak serum concentration (Cmax) and area under the curve (AUC) of ranolazine significantly decreased in DM compared with non-DM rats. DM rats showed significantly higher volumes of distribution (Vd) and clearance (CL) of ranolazine than non-DM rats. DM did not affect Ke, Tmax, and T۱/۲ of ranolazine. The concentration of metabolite was lower than the HPLC limit of detection (LOD).Conclusion: It was found that streptozotocin-induced DM increased Vd and CL of ranolazine, thereby decreasing the AUC of the drug. Therefore, dosage adjustment may be necessary for DM patients, which requires further clinical studies.

کلمات کلیدی: