

Pharmacokinetic interactions between carbamazepine and the traditional Chinese medicine Paeoniae Radix

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Abstract

The present study was conducted to evaluate the effects of Paeoniae Radix (PR), one of the most famous tonic traditional Chinese medicines, on the pharmacokinetics of carbamazepine (CBZ) in rats and to determine the possible interactions between PR and CBZ. The significant decrease in T_{max} indicated that simultaneous oral administration of PR contributed to more rapid absorption of CBZ. It is suggested that the faster absorption of CBZ might lead to the rapid onset of its clinical effect. There were no significant differences in maximum concentration (C_{max}), area under the plasma concentration-time curve (AUC), half-life ($t_{1/2}$), mean residence time (MRT), clearance/bioavailability (CL/F), and apparent volume of distribution/bioavailability (V_d/F) of CBZ between the two groups, showing that PR did not significantly affect the absorption extent, distribution, metabolism, and elimination of CBZ. A significant decrease in protein binding rate was found when CBZ was coadministered with PR. Further studies are in progress to clarify the clinical significance and the mechanism underlying the effects of PR on the protein binding of CBZ observed in the present study.