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Determination of Rivastigmine in Rat Plasma by HPLC: Application to a Relative Bioavailability Study of a Transdermal Film-Forming Rivastigmine Spray

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SUMMARY. **A method for determination of rivastigmine in rat plasma using high-performance liquid chromatography (HPLC) with UV detection was established to evaluate the relative bioavailability of a transdermal film-forming spray (TFS) of rivastigmine. After addition of oxcarbazepine as internal standard, rivastigmine was extracted from the plasma by methyl tert-butyl ether. Chromatographic separation was achieved on a Dikma C18 column with a mobile phase consisting of ammonium acetate buffer (20 mM, pH 6.8) - acetonitrile (75:25, v:v). The HPLC method was quantitatively evaluated in terms of selectivity, linearity, precision, accuracy, recovery and stability, confirming its suitability for the bioavailability study. The relative bioavailability of TFS was investigated using a rat model and oral administration of rivastigmine as a control. Drug concentration in plasma at the setting times was determined, and area under concentration-time curve (AUC) was calculated. The relative bioavailability of TFS was 567%. The established method was precise, selective and accurate, and TFS is concluded to be an effective transdermal delivery system for rivastigmine.**

KEY WORDS: HPLC, Rivastigmine, Transdermal film-forming spray.

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