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Comparative pharmacokinetics and brain distribution of magnolol and honokiol after oral administration of Magnolia officinalis cortex extract and its compatibility with other herbal medicines in Zhi-Zi-Hou-Po Decoction to rats.

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Abstract

Zhi-Zi-Hou-Po decoction (ZZHPD) is one of the famous antidepressant Chinese formulas and is composed of Magnolia officinalis cortex (HP), Gardenia jasminoides Ellis (ZZ) and Citrus aurantium L. (ZS). Magnolol (MN) and honokiol (HN) from HP are the major active ingredients responsible for the therapeutic effects of ZZHPD. The aim of this study is to compare the pharmacokinetics and rat brain distribution of MN and HN after oral administration of HP extract and its compatibility with other herbal medicines in ZZHPD by HPLC-FLD. Compared with the HP group, Tmax (time to reach peak drug concentration in plasma) and AUC(0-т) significantly increased in the ZZHPD and HP-ZZ groups. There was little change in the HP-ZS group in comparison with the HP group, which indicated that ZZ promotes absorption extent and defers the absorption rate of MN. The different compatibility of ZZHPD had a different degree of impact on the concentration of MN and HN in brain. The concentration of MN significantly increased in the HP-ZZ group while it decreased in the HP-ZS group compared with the HP group, which explained the concentration of compounds being slightly greater in the ZZHPD group than in the HP group. HP mixed with other medicines resulted in a decrease in HN concentration in the brain, particularly HP compatible with ZS. The results could be helpful for revealing the compatibility mechanism and providing clinical medication guidance for ZZHPD.

KEYWORDS: HPLC-FLD; brain distribution; honokiol; magnolol; pharmacodynamics

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