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Sex-Dependent Pharmacokinetics of Puerarin in Rats After Single Oral Administration

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***SUMMARY*. Puerarin, the main isoflavonoid derived from the root of Radix puerariae, has been used for various medicinal purposes in traditional Chinese medicine for centuries. To determine the sex differences in the pharmacokinetics of puerarin, we examined the plasma levels of puerarin in female and male rats treated with a single oral administration of puerarin (400 mg/kg) by a accurate, rapid and sensitive UPLC-UV method. The $AUC_{(0-t)}$ and $AUC_{(0-\infty)}$ of puerarin in female rats group were 1.32- and 1.31-fold higher than that in male rats group, respectively ($P < 0.05$). In addition, the CL/F of puerarin in females was approximately 1.28-fold lower than that in males ($P < 0.05$). Our study revealed that disparity was found between male and female rats in the pharmacokinetics of puerarin. The plasma levels of puerarin in the female rats had significantly increased compared to male rats, possibly due to the lower elimination rate. Therefore, puerarin administration should be carefully considered in women.**

RESUMEN. Puerarina, el principal isoflavonoide derivado de la raíz de Radix puerariae, se ha utilizado por siglos para varios propósitos medicinales en medicina tradicional china. Para determinar las diferencias de sexo en la farmacocinética de la puerarina, se examinaron los niveles plasmáticos de puerarina en ratas hembra y macho tratadas con una sola administración oral de puerarina (400 mg/kg) mediante un método UPLC-UV preciso, rápido y sensible. El $AUC_{(0-t)}$ y el $AUC_{(0-\infty)}$ de puerarina en ratas hembras fueron 1,32 y 1,31 veces mayores que en ratas machos, respectivamente ($P < 0,05$). Además, el CL/F de puerarina en hembras fue aproximadamente 1,28 veces menor que en los hombres ($P < 0,05$). Nuestro estudio reveló que se encontró disparidad en la farmacocinética de puerarina entre ratas macho y hembra. Los niveles plasmáticos de puerarina en ratas hembra habían aumentado significativamente en comparación con los de ratas macho, debido posiblemente a la menor tasa de eliminación. Por lo tanto, la administración de puerarina debe ser cuidadosamente considerada en mujeres.

KEY WORDS: oral administration, puerarin, rats, sex-dependent pharmacokinetics.

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