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Pharmacokinetic Study of Docetaxel after Intravenous Administration of Magnesium Isoglycyrrhizinate Injection in Rats by UPLC-MS-MS

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***SUMMARY*. A rapid, sensitive, simple and reliable liquid chromatography/tandem mass spectrometry (LC-MS-MS) method was developed for the study of pharmacokinetic effects of magnesium isoglycyrrhizinate (MgIg) on docetaxel (DOC) after intravenous administration of single dose of 10 mg/kg MgIg injection in rats. Multiple reaction monitoring (MRM), positive scan mode and paclitaxel as internal stand (IS), were m/z 830.47/304.13 and 876.05/308.18 for DOC and IS, respectively, with a dwell time of 163 ms. The intra- and inter-day precision (RSD) at four QC levels were both less than 13% and accuracies ranged from 98.1 to 108.5%. We chose the ionization mode of [M+Na]+rather than [M+H]+ and successfully set up a reproducible, sensitive and facile LC-MS-MS method for the determination of DOC. The validated and facilitate method was successfully applied to pharmacokinetic study of MgIg on DOC in rats, and MgIg didn't show any pharmacokinetic effects on DOC.**

RESUMEN. Un método rápido, sensible, sencillo y fiable de cromatografía líquida en tándem con espectrometría de masas (LC-MS-MS) fue desarrollado para el estudio de los efectos farmacocinéticos de isoglycyrrhizinato de magnesio (MgIg) en docetaxel (DOC) después de la administración intravenosa de una dosis única de 10 mg kg de MgIg en ratas. El monitoreo de reacción múltiple (MRM), en modo de escaneo positivo y usando paclitaxel como estándar interno (IS), fueron m/z 830,47/304,13 y 876,05/308,18 para DOC e IS, respectivamente, con un tiempo de permanencia de 163 ms. La precisión intra- y entre días (RSD) en cuatro niveles de control de calidad fueron menores al 13% y la seguridad osciló desde 98,1 hasta 108,5%. Elegimos el modo de ionización de [M+Na]+ en lugar de [M+H]+ y se logró éxito con el método LC-MS-MS, que resultó reproducible, sensible y fácil para la determinación de DOC. El método se aplicó con éxito para el estudio farmacocinético de MgIg sobre DOC en ratas y el MgIg no mostró ningún efecto farmacocinético sobre DOC.

KEY WORDS: docetaxel, magnesium isoglycyrrhizinate, pharmacokinetic, UPLC-MS-MS.

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