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Pharmacokinetics of Oxymatrine in Rat After Intravenous Administration by Ultra-Performance Liquid Chromatography-Tandem Mass Spectrometry

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SUMMARY. **Oxymatrine is an alkaloid active ingredient extracted from the traditional Chinese medicinal plant Sophora flavescens Ait. It has anti-inflammatory, anti-fibrosis and cirrhosis, anti-arrhythmia, and anti-tumor effects. In this study, we used UPLC-MS/MS to detect oxymatrine in rat plasma, and investigated its pharmacokinetics in rats. Six rats were given oxymatrine (2 mg/kg) by intravenous (iv) administration. The blood (100 µL) was withdrawn from the caudal vein at 5, 30 min, 1, 2, 4, 6, 8, 12, and 24 h after administration. Chromatographic separation was achieved using a UPLC BEH C18 column using mobile phase of acetonitrile-0.1 % formic acid with gradient elution. Electrospray ionization (ESI) tandem mass spectrometry in multiple reactions monitoring (MRM) mode with positive ionization was applied. Intra-day and inter-day precision RSD of oxymatrine in rat plasma were lower than 13%. The method was successfully applied in the pharmacokinetics of oxymatrine in rats after intravenous administration. The t1/2 of oxymatrine is 4.9 ± 3.4 h, which indicates the quick elimination.**

RESUMEN. La oximatrina es un ingrediente activo alcaloide extraído de la planta medicinal tradicional china Sophora flavescens Ait. Tiene efectos antiinflamatorios, antifibrosis y cirrosis, antiarritmia y antitumorales. En este estudio utilizamos UPLC-MS/MS para detectar oximatrina en plasma de rata, e investigamos su farmacocinética en ratas. Seis ratas recibieron oximatrina (2 mg/kg) por administración intravenosa (iv). La sangre (100 µL) se extrajo de la vena caudal a los 5, 30 min, 1, 2, 4, 6, 8, 12 y 24 h después de la administración. La separación cromatográfica se logró usando una columna UPLC BEH C18 y fase móvil de acetonitrilo-ácido fórmico al 0.1% con gradiente de elución. Se aplicó espectrometría de masas en tándem de ionización por electropulverización (ESI) en modo de monitoreo de reacciones múltiples (MRM) con ionización positiva. La RSD de precisión intradiaria e intradiaria de oximatrina en plasma de rata fue inferior al 13%. El método se aplicó con éxito en la farmacocinética de oximatrina en ratas después de la administración intravenosa. El t1/2 de oximatrina es 4.9 ± 3.4 h, lo que indica su eliminación rápida.

KEY WORDS: oximatrine, pharmacokinetics, rat, UPLC-MS/MS.

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