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论文

LC/MS/MS法测定血浆、羊水中曲马多及其活性代谢物氧去甲基曲马多LC/MS/MS法测定血浆、羊水中曲马多及其活性代谢物氧去甲基曲马多

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摘要：

目的建立液相色谱-串联质谱法(LC/MS/MS)同时测定血浆和羊水中曲马多和氧去甲基曲马多，并研究其在母体和胎儿体内分布。方法生物样本经液-液提取，通过液相色谱-串联质谱，以选择离子反应监测(SRM)方式进行检测。结果测定血浆样品曲马多和氧去甲基曲马多的线性范围为8.0~800.0 μg·L^{-1}；测定羊水样品曲马多和氧去甲基曲马多的线性范围为1.0~400.0 μg·L^{-1}。12例剖宫产产妇术前im盐酸曲马多(1.5 mg·kg^{-1})后，血浆中曲马多和氧去甲基曲马多浓度较高，羊水中曲马多浓度较低，且未检测出氧去甲基曲马多。结论本方法操作简便、灵敏度高，可用于临床药代动力学研究。

关键词： 曲马多 氧去甲基曲马多 液相色谱-质谱 人血浆 羊水

Determination of tramadol and its active metabolite *O*-desmethyltramadol in plasma and amniotic fluid using LC/MS/MS

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Abstract:

AimTo determinate tramadol and *O*-desmethyltramadol in human plasma and amniotic fluid by LC/MS/MS, and distribution of tramadol and *O*-desmethyltramadol in maternity and fetus were studied. MethodsSamples containing tramadol, *O*-desmethyltramadol and diphenhydramine (internal standard, IS) were extracted using liquid-liquid extraction, followed by liquid chromatographic separation and on-line MS/MS using atmospheric pressure chemical ionization as an interface detection. The analytes were detected in the selected reaction monitoring mode. ResultsThe calibration curves for tramadol and *O*-desmethytramadol in plasma and amniotic fluid were linear in the range from 8.0 to 800.0 μg·L^{-1} (plasma) and 1.0 to 400.0 μg·L^{-1} (amniotic fluid). The method was applied to the measurement of tramadol and *O*-desmethytramadol concentrations in maternal vein, umbilical vein, umbilical artery and amniotic fluid. Following intramuscular pre-operative administration 1.5 mg·kg^{-1} doses of tramadol to parturients, plasma concentrations of tramadol were significantly higher than those in amniotic fluid. The concentrations of *O*-desmethyltramadol in plasma were lower, and were not detected in amniotic fluid. ConclusionThe method is shown to be accurate, robust and convenient, and suitable for clinical pharmacokinetics studies of tramadol and *O*-desmethyltramadol.

Keywords: *O*-desmethyltramadol liquid chromatography tandem mass spectrometry human plasma amniotic fluid tramadol

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