

论文

高效液相色谱-质谱联用测定家兔体内可乐定血药浓度

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摘要:

目的用HPLC-MS测定家兔体内可乐定血药浓度,研究可乐定在家兔体内的药代动力学行为。方法 色谱仪为Waters Alliance 2790,色谱柱为XTerra C18(150 mm×2.1 mm ID,5 μm)。流动相为乙腈-碳酸氢铵水溶液,梯度洗脱;质谱仪为Micromass ZQ-4000仪,电喷雾电离源,选择离子监测(SIM)质荷比(m/z)为230。结果本方法回收率较高,重现性好。线性范围为1~80 μg·L<sup>-1</sup>,最低检测浓度为0.05 μg·L<sup>-1</sup>。主要药代动力学参数C<sub>max</sub>,AUC<sub>0-t</sub>和t<sub>max</sub>分别为(27±9) μg·L<sup>-1</sup>, (5 352±1 121) μg·L<sup>-1</sup>, (79±17) h。结论本法灵敏度高,选择性强,具有较高的精密度和准确度。透皮贴剂中的可乐定可以平稳地透过家兔皮肤,稳定地控释达7 d。

关键词: 高效液相色谱-质谱联用法 可乐定 透皮贴剂 血药浓度 药代动力学

Determination of clonidine in rabbit plasma by HPLC-MS

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Abstract:

AimTo determine clonidine in rabbit plasma by LC-MS. MethodsThe LC-MS system consisted of Waters Alliance 2790 HPLC and Micromass ZQ-4000 MS. The HPLC was performed by using XTerra C18(150 mm×2.1 mm ID, 5 μm). The mobile phase, consisting of acetonitrile/ammonium hydrogen carbonate solution, was maintained to a flow-rate of 0.2 mL·min<sup>-1</sup> and the linear gradient elution was adopted. Mass spectrum was obtained by using electrospray ionization interface and the m/z of SIM was 230. ResultsThe average recovery was high and the method was reproducible. The calibration curve showed good linearity in the range of 1-80 μg·L<sup>-1</sup>, the lowest limit of detection was 0.05 μg·L<sup>-1</sup>. The C<sub>max</sub>, AUC<sub>0-t</sub> and t<sub>max</sub> value of the pharmacokinetics parameter were (27±9) μg·L<sup>-1</sup>, (5 352±1 121) μg·L<sup>-1</sup>, (79±17) h. Conclusion The results demonstrated that the method had high sensitivity, good selectivity, accuracy and precision. It is used to determine the clonidine concentration in plasma. The transdermal patch can deliver clonidine to the surface of rabbit skin stably for periods of up to 1 week after a single application.

Keywords: clonidine transdermal patch plasma drug concentration pharmacokinetics High performance liquid chromatography-mass spectrometry

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