



## 香丹注射液中3种酚酸类成分在大鼠体内的药动学研究

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**中文摘要:**目的: 建立香丹注射液中丹参素(DSS)、原儿茶酸(PA)、原儿茶醛(PAL)在大鼠血浆中的HPLC分析方法,以间羟苯甲酸为内标,研究香丹注射液中3种酚酸类成分在大鼠体内的药动学过程。方法: 10%三氯乙酸沉淀蛋白,乙酸乙酯萃取,HPLC法测定不同时间血浆中DSS,PA,PAL血药浓度,DAS2.0数据处理软件对数据进行统计处理。结果: DSS在0.68-44.0 mg·L<sup>-1</sup>,PA在0.43-14.0 mg·L<sup>-1</sup>,PAL在0.38-12.0 mg·L<sup>-1</sup>具有良好的线性关系,平均回收率均大于92%,精密度和稳定性试验RSD 0.4%-4.8%;香丹注射液中丹参素、原儿茶酸、原儿茶醛均呈二室开放模型,其主要药动学参数分别为 $t_{1/2\alpha}$ (6.26±4.6),(5.93±4.9),(18.44±2.4) min; $t_{1/2\beta}$ (4.11±8.8),(63.28±0.13),(69.315±0) min;  $AUC_{0-\infty}$ (852.98±175.6),(83.84±58.8),(147.79±12.3) mg·min<sup>-1</sup>·L<sup>-1</sup>。结论: 建立了香丹注射液中DSS,PA,PAL血药浓度的测定方法,该方法准确、灵敏、稳定性好,回收率高,且适用于其药动学的研究。

**中文关键词:** 香丹注射液 丹参素 原儿茶酸 原儿茶醛 药动学

### Pharmacokinetics of three phenolic acids of Xiangdan injection in rats

**Abstract:** Objective: To establish a HPLC method for the analysis of Danshensu (DSS), protocatechuic acid (PA) and protocatechuic aldehyde (PAL) of Xiangdan injection in rat's plasma, and to study pharmacokinetic characteristics of Xiangdan injection components in rats with m-hydroxybenzoic acid as internal standard. Method: protein was precipitated by 10% trichloroacetic acid and extracted by ethyl acetate. The plasma concentration was detected by HPLC. The pharmacokinetics parameters of DSS, PA and PAL were calculated by DAS2.0 software after *iv* injection. Result: DSS, PA and PAL have a good linear relationship in 0.68-44.0 mg·L<sup>-1</sup>, 0.43-14.0 mg·L<sup>-1</sup> and 0.38-12.0 mg·L<sup>-1</sup>, respectively. The average recoveries were more than 92% and the RSD of precision and stability of the test were between 0.4%-4.8%. DSS, PA and PAL showed a two-compartment open model, the half-life of absorption( $t_{1/2\alpha}$ ) were (6.26±4.6), (5.93±4.9), (18.44±2.4) min, the half-life of elimination( $t_{1/2\beta}$ ) were (64.11±8.8), (63.28±0.13), (69.315±0) min, the area under curve( $AUC_{0-\infty}$ ) were (852.98±175.6), (83.84±58.8), (147.79±12.3) mg·min<sup>-1</sup>·L<sup>-1</sup>. Conclusion: A method with high recovery rate and good stability was established to determine the blood concentration of DSS, PA, PAL in Xiangdan injection and applied in its pharmacokinetics successfully.

**keywords:** Xiangdan injection danshensu protocatechuic acid protocatechuic aldehyde pharmacokinetics

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