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• 中文摘要

Paeoniflorin 是芍藥(Paeoniae radix)的主要活性成份，在過去的報告中，被發現有降血糖作用，但是在藥物動力學的研究卻不甚完善。爲了對 Paeoniflorin 在生物體內動態有更完整的了解，本實驗以靜脈注射，腹膜腔以及口服的方式投與至家兔，來觀察 Paeoniflorin 在家兔體內之藥物動力學表現，進一步探討 Paeoniflorin 於家兔體內之生體可用率。本實驗之分析方法乃利用逆相高效液相層析管柱配合波長 238nm 之紫外光檢測。在血漿濃度範圍爲每毫升 50-50000ng 內，呈現良好的線性關係。本研究先以三種不同劑量 0.5mg/kg，5mg/kg，25mg/kg 之 Paeoniflorin 靜脈投與至六隻家兔，分析其血漿中濃度，顯示 Paeoniflorin 於家兔體內動態符合二室性模式。而在此劑量範圍下呈線性藥物動力學特性，排除半衰期，清除率等各項藥物動力學參數並無統計上之差異；其曲線下面積(AUC)與劑量之關係呈良好的比例現象。以腹膜腔內投與劑量 25mg/kg 之 Paeoniflorin 於六隻家兔，分析其結果，發現其血液內 Paeoniflorin 之動態與靜脈注射之結果不相同，屬於一室性模式，而其曲線下面積與靜脈注射 25mg/kg 之數據比較，獲得腹膜腔內注射之生體可用率有 1.03±0.16。另外將 Paeoniflorin 以口服投與 25mg/kg 至家兔體內，分析其結果，發現血液中 Paeoniflorin 的含量很低。經由體外十二指腸滲透實驗結果顯示，Paeoniflorin 經過 7 小時之滲透率僅 0.124±0.044%。故由此結果印證，口服生體可用率不佳之主因乃是腸胃道吸收不良所造成。

• 英文摘要

Paeoniflorin is the major constituent of paeoniae radix, which has been reported to have antihyperglycemic activity recently. Although the antihyperglycemic activity of paeoniflorin has been studied, the pharmacokinetics of paeoniflorin has not been studied well. An accurate, simple and specific HPLC method was developed to detect the concentration of paeoniflorin in biological sample firstly. A

reverse phase column with UV detection at 238 nm was used in chromatographic separation. The calibration curve of plasma sample showed good linearity within the concentration range of 50 to 50000 ng/ml. The pharmacokinetics of paeoniflorin was studied by intravenous administration of three different doses (0.5, 5, 25 mg/kg) in six rabbits, respectively. The plasma concentration-time profiles of paeoniflorin could be described by a bi-exponential equation with each dose. There was no significant difference in pharmacokinetic parameters of half-life, systemic clearance. The area under the plasma concentration curve was proportional to the dose administered. It indicated that paeoniflorin had dose linearity property between 0.5~25 mg/kg after intravenous administration. Paeoniflorin was also intraperitoneal administered to rabbits at 25 mg/kg. The plasma concentration-time profiles could be fitted by one-compartment model. Comparing the area under plasma concentration time curve with that of intravenous administration, the absolute bioavailability was 1.03±0.16. After oral administration of 25 mg/kg of paeoniflorin to rabbits, the concentration of paeoniflorin in plasma was very low. According to duodenum permeability study, the ratio of paeoniflorin permeability was only 0.124±0.044%. It suggested that poor absorption of paeoniflorin in intestine resulting the low bioavilability of paeoniflorin after oral administration.