

宽体金线蛭 5 种提取方法的比较

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水蛭是传统的活血化瘀中药。世界上的水蛭有几百种,中国也有近百种,《中华人民共和国药典》(1990 年版)收录了 3 种:(1)蚂蟥(*Whitmania pigra*)即宽体金线蛭。(2)水蛭(*Hirudo nipponica whitman*)。(3)柳叶蚂蟥(*Whitmania acranulata Whitman*)。不同种类的水蛭含有特定的活血有效成分⁽¹⁻⁵⁾。水蛭素(*Hirudin*)是仅从医用水蛭(*Hirudo medicinalis*)中提出的一种有效成分^(1, 5),而宽体金线蛭的有效成分,则未见报道。我国盛产宽体金线蛭,且临床上多用此类水蛭。由于其活性成分不明确,目前采用的各种提取方法,似乎有些盲目,不利于此类水蛭的合理利用。因此,我们以体外抗凝抗栓为活性指标,比较研究了几种提取方法,供研究水蛭及临床应用水蛭的同行们参考。

材料与方法

一、材料 宽体金线蛭,购自山东省微山县药材公司,经鉴定为正品。凝血酶为天津生化制品厂产品。动物:雄性大耳白兔,体重 2.5 kg 左右,购自中国医学科学院动物中心。

二、仪器 双工位血液凝固自动测时仪,成都市大丰无线电机械厂制造。XSN-R II 型体外血栓形成、血小板粘附两用仪,江苏省无锡县电子仪器二厂生产。

三、血浆制备 抽取兔颈动脉血 9 ml,加入盛有 3.8%枸橼酸钠 1 ml 的离心管中,混匀后以 3000 r/min,离心 10 min,分离血浆备用。

四、水蛭提取方法

1. 药液 I 水蛭粗粉 50 g 加 80%乙醇 250 ml,浸泡 24 h,再加热回流提取 4 h,过滤后再加 80%乙醇 150 ml 回流提取 2 h,过滤,合并 2 次乙醇提取液,浓缩至 20 ml 左右,置分液漏斗中,加 40 ml 水,振荡,放置分层后,将下层水溶液放出蒸干,备用。

2. 药液 II 水蛭粗粉 50 g,加 0.5 N NaCl 水溶液 300 ml,浸泡 24 h;用稀 HCl 调 pH 至 2~3 后,在搅拌条件下,升温到 70℃,保持 15 min;过滤,滤渣再加 200 ml 0.5 N NaCl 水溶液。重复上述步骤,合并两次提取液,以 10%NaOH 调 pH 至 6.5

左右,放置,离心去沉淀,低于 40℃真空浓缩至 100 ml,加入 95%乙醇,使其乙醇浓度达到 60%;离心除去沉淀,上清液冷却至 -10℃,加入 -10℃的 95%乙醇,使乙醇浓度达到 90%;收集沉淀部分,水溶后,以 G-25 柱脱盐,蒸干备用。

3. 药液 III 水蛭粗粉 50 g,加 500 ml 蒸馏水,煎煮 1 h,过滤,滤渣加 5 倍体积蒸馏水,再煎煮 0.5 h。合并 2 次滤液,置水浴上浓缩至 100 ml;加入 95%乙醇至乙醇浓度为 60%。放置,离心去沉淀,上清液浓缩干燥,备用。

4. 药液 IV 水蛭粗粉 50 g,加 40%丙酮水溶液 200 ml,室温下搅拌 30 min;过滤,滤渣再以 40%丙酮水溶液 150 ml 搅拌提取 30 min。合并两次提取液,低于 50℃,减压蒸馏到 100 ml;加 150 ml 的丙酮,放置;弃去沉淀,上清液浓缩干燥,备用。

5. 药液 V 水蛭粗粉 50 g,加 100 ml 蒸馏水,匀浆,离心,沉淀再匀浆 1 次;合并 2 次上清液,减压蒸馏,浓缩至 50 ml;加入 95%乙醇至乙醇浓度为 60%。放置,离心去沉淀;上清液浓缩干燥,备用。

五、抗凝血实验 在血液凝固自动测时仪上测定凝固时间。取兔血浆 0.1 ml,加入 0.1 ml 生理盐水,调整凝血酶的加入量,使其凝固时间为 15 s 左右;以此为对照,以药液代替生理盐水,记录凝固时间。用 t 检验方法,计算 P 值。

六、抗血栓实验 用预先吸取 0.2 ml 生理盐水的硅化玻璃注射器,自兔颈动脉抽血 1.5 ml,摇匀,置于聚乙烯管中,按仪器说明书方法测量血栓的长度和干重,作为对照;以药液代替蒸馏水,测量血栓的长度和干重,求出抑制率,并用 t 检验方法计算 P 值。

结 果

水蛭各种提取物抗凝抗栓作用的结果,见附表。由附表可见,抗凝作用大小的次序为:药液 V > 药液 III > 药液 IV > 药液 I > 药液 II,抗栓作用强度次序为药液 IV > 药液 III > 药液 V > 药液 II > 药液 I。

讨 论

一、用不同提取方法得到的宽体金线蛭的各种提

附表 水蛭各种提取物抗凝血、抗血栓作用比较 ($\bar{x} \pm S$)

样品	抗 凝 血			抗 血 栓				
	浓度 (生药 g/ml)	测定 次数	凝固时间 (min)	浓度 (生药 g/ml)	测定 次数	血栓长度 (mm)	血栓干重 (g)	抑制率 (%)
对照		3	14.91±0.35		4	26.5±4.4	18.5±2.9	
药液 I	0.2	3	22.47±0.40 *	0.5	5	24.6±7.1	15.4±7.6	7~17
药液 II	0.2	3	14.12±0.14	0.5	3	18.3±1.5	16.0±4.0	31~14
药液 III	0.2	3	34.65±0.61 *	0.5	5	8.6±5.3	5.0±2.9 *	78~73
药液 IV	0.2	3	29.30±0.31 *	0.5	4	2.5±2.8	2.3±2.6 *	90~88
药液 V	0.2	3	37.04±0.61 *	0.5	6	13.7±3.8	7.1±1.2 *	48~62

注: 与对照组比较, * $P < 0.01$

取物, 其抗凝抗栓作用有明显的差别。值得注意的是, 采用提取中药的常用的水煎酒沉法得到的提取物, 抗凝作用最强, 抗栓作用也很好。有关的动物实验也证明了这一点。

二、体外抗凝抗栓作为活性指标, 虽然不很理想, 有待体内实验和临床来证实, 但文献报道的几种水蛭活性成分的筛选, 尤其是水蛭素的发现和分离, 都是以体外活性为重要指标⁽²⁻⁵⁾。在这些指标的引导下, 最后得到了活性成分的纯品。

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中药浸泡治疗甲沟炎 68 例

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近2年来, 笔者用中药浸泡治疗甲沟炎68例, 疗效满意。现报告如下。

临床资料 68例根据有关标准(黄家驷, 外科学, 第1版, 北京: 人民卫生出版社, 1972: 122)确诊为甲沟炎。其中男51例, 女17例; 年龄15~65岁, 平均32岁; 病程: 2天~3个月, 平均12天。右手拇指36例, 食指6例, 中指4例, 小指1例。左手拇指18例, 食指2例, 无名指1例。

治疗方法 朴硝30g 甘草30g; 将以上两药浸泡在100ml冷开水中, 时间为20min, 然后将浸出液取出备用, 每次20ml, 将患指浸入约3~5

min, 每天2~3次。

结 果 经治疗后, 临床炎症消退, 患指功能恢复正常为痊愈。结果, 68例均痊愈, 平均用药3~5天, 均未使用抗菌药物。一般用药1~2次患指炎症开始消退。用药3天内治愈28例, 5天内治愈40例。

体 会 朴硝具有消肿解毒、活血止痛作用, 主要含有硫酸钠, 此外尚含小量氯化钠, 氧化镁, 硫酸镁。甘草主要含甘草甜素, 有解毒, 抗炎, 抗变态反应等作用, 两药相加有协同作用。本法痛苦小, 使用方便, 值得推广应用。

syndrome apparently.

Key words gastroelectricity, gastric motility, experimental spleen deficiency

(Original article on page 156)

Pharmacokinetic Characteristics of Tetramethylpyrazine and Study on Hemorheology in Rat Model of Spleen Deficiency Syndrome

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In this experiment, the essence of Spleen Deficiency Syndrome (SDS) was explored with the rat model of SDS using tetramethylpyrazine (TMP). 120 Wistar rats were divided into two groups, 60 each for control and test group, they were treated with normal saline and reserpine respectively. The hemorheological parameters were also studied in 6 each of both groups. The pharmacokinetic properties were investigated in the remaining control group and test group. Results: (1) Two-compartment open model of the control group was turned into that of one-compartment in test group; (2) The SDS model significantly affected the absorption and distribution of TMP in rats. AUC was much higher and serum concentration of TMP increased significantly than that of control. Hemorheological parameters (viscosity of whole blood, fibrinogen, etc.) increased significantly ($P < 0.05-0.01$), it demonstrated that the SDS model was in a state of Blood Stasis. It might be one of the pharmacokinetic mechanisms of TMP in the SDS model of rats.

Key words Spleen Deficiency, tetramethylpyrazine, pharmacokinetics, blood hemorheology

(Original article on page 159)

Protection Against Experimental Hepatic Injury by Fengxiang Yigankang Capsule (凤翔乙肝康胶囊)

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Pectective effect of Fengxiang Yigankang (FXYGK) capsule against hepatotoxicity induced by CCl_4 and acetaminophen (AAP) was studied. It was found that the FXYGK capsule inhibited markedly malonic aldehyde (MDA) formation of liver induced by CCl_4 and AAP. It blocked also depletion of reduced form of glutathione (GSH) of damaged liver induced by AAP. In addition, FXYGK could decrease serum alanine aminotransferase levels induced by CCl_4 ($P < 0.05$). The results of histopathological examination showed that the FXYGK capsule (0.45, 0.9 and 1.8 g/kg) could also reduce significantly fatty degeneration of liver ($P < 0.05$).

Key words Fengxiang Yigankang capsule, serum alanine aminotransferase, malonaldehyde, glutathione, fatty degeneration

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Comparison among Five Different Extracting Methods of *Whitmania Pigra* Whitman

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Whitmania pigra whitman is one of the traditional Chinese drugs commonly used in clinical practice for Blood circulation promoting and Stasis relieving, its active principle was unknown yet. In this report, five extracting methods have been studied based on its extract's anticoagulant and antithrombotic activity in vitro. The results have revealed that the extracts using different extracting methods showed different anticoagulant and anti-thrombotic activity. Among them, the extracts produced by water-boiling and alcohol-precipitating have shown the strongest anticoagulant activity and good antithrombotic effect.

Key words *Whitmania pigra whitman*, anticoagulant, antithrombosis

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