丹参、蒲黄、大黄制剂对大鼠草鱼胆中毒早期肾脏损害的影响

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内容提要　本文观察了丹参、蒲黄、大黄制剂对胃饲草鱼胆汁大鼠早期肾脏损害的影响。与模型组比较，上述药物能降低血肌酐和尿 N-乙酰-β-D-氨基葡萄糖苷酶(NAG酶)，使肌酐清除率增加，减少近曲小管上皮细胞坏死及囊腔内有红细胞的肾小球数目。为中药治疗鱼胆中毒所致的肾脏损害提供初步依据。

关键词　鱼胆中毒　肾脏损害　丹参　蒲黄　大黄 N-乙酰-β-D氨基葡萄糖苷酶　肌酐清除率

草鱼为我国主要食用淡水鱼之一。在我国南方，生食草鱼胆致严重肾损害并发急性肾功能衰竭者并不少见，目前临床上尚无特殊治疗方法。本文观察了胃饲草鱼胆汁大鼠早期肾脏损害的生化和病理改变以及腹腔注射丹参、蒲黄、大黄对早期肾脏损害的影响，以供临床参考。

材料与方法

一、实验动物与分组

SD雄性大白鼠，体重 180～230g，由本院动物室提供。随机分为正常对照组、模型组、药物防治组(包括丹参组，蒲黄组，大黄组)共 5 组，每组 7 只大鼠。

二、鱼胆汁收集

5 条草鱼（4 kg/条），取其胆汁 5 份混匀，青霉素小瓶分装，置低温冰箱备用。

三、药物

丹参注射液，每 2 ml 含生药 2 g (湖北宜昌民康制药厂生产)；蒲黄和大黄注射液，每 2 ml 分别含生药2g和0.4g(本院制剂室生产)。

四、实验方法

所有大鼠均禁食12h 后，模型组及药物组均胃饲草鱼胆汁0.5ml/100g，正常对照组胃饲等量生理盐水。药物组胃饲鱼胆汁后分别腹腔注射丹参、蒲黄0.25ml/100g、大黄 0.5ml/100g。模型组腹腔注射生理盐水 0.5ml/100g。每日注射给药 2 次，共计 4 次。第 48h 乙醚麻醉处死。

五、观察项目

1.尿量　第 24h、第 48h 连续两个 24h 的尿量(ml)。

2.生化　第24h、第 48h 连续两个 24h 尿 NAG 酶(u/mg·Cr)，第 48h血肌酐(μmol/L)，肌酐清除率(ml/min)。

3.病理　肾系数即左肾重(g)与体重(kg)的比值。右肾组织病理：以核碎裂、核溶解、胞浆脱失作为细胞坏死指标。于肾皮、髓质交界处计数100 个近曲小管上皮细胞中细胞坏死数。每片计数50个肾小球中包囊腔内出现红细胞的肾小球数。

结　果

一、尿量及生化检测结果，见表 1 。

24h 尿量：各药物组与模型组比较，均值都高于模型组，但$P>0.05$；血肌酐和尿 NAG 酶：各药物组低于模型组，$P<0.01$；肌酐清除率：各药物组高于模型组，$P<0.05$。

二、肾脏形态学结果，见表 2 。

由表 2 可见，肾系数，丹参及大黄组小于模型组 $P<0.01$；包囊腔内有红细胞的肾小球数，各药物组少于模型组，$P<0.05$；肾小管上皮细胞坏死数，各药物组少于模型组，$P<0.05$。

讨　论

临床上鱼胆中毒主要表现为胃肠道、肝、肾等器官受累，主要死亡原因为急性肾功能衰竭[1]。有人认为鱼胆汁的有毒物质不是大分子蛋白质[2]。我们的实验观察到，给大鼠胃饲草鱼胆汁后，早期即可引起肾损害，表现为尿量减少，血肌酐上升，肌酐清除率下降，尿 NAG 酶增高，肾脏肿大，近曲小管上皮细胞坏死和包囊腔内出现红细胞的肾小球数目增高。早期应用丹参、蒲黄、大黄对草鱼胆汁所致的大鼠肾脏损害均有影响。肾功能的损害及病理改变均较模型组为

表 1　各组尿量及生化检测结果比较　($\bar{x}\pm S$)

组　别	第2个24h尿量 (ml)	血　肌　酐 (μmol/L)	肌酐清除率 (ml/min)	尿NAG酶 (u/mg·Cr) 24h	尿NAG酶 (u/mg·Cr) 48h
对　照	10.01±1.56	54.30±30.54	0.12±0.08	4.01± 2.07	3.99±1.23
模　型	3.88±3.05***	136.78±44.49*	0.06±0.05	15.47±10.71***	16.62±7.54***
丹　参	6.94±4.23	63.74±19.25△△	0.20±0.09△△	10.02± 5.80*△△	5.28±4.82△△▲
蒲　黄	8.74±6.71	66.40±26.56△△	0.37±0.29*△	4.95± 3.24△△△	3.54±3.62△△
大　黄	5.74±4.48*	71.71±25.23△△	0.03±0.14△	6.29± 5.59△△	1.04±0.42***△△△

注：与对照组比较，*$P<0.05$，　**$P<0.01$，　***$P<0.001$；　与模型组比较，△$P<0.05$，△△$P<0.01$，　△△△$P<0.001$；与大黄组比较，▲$P<0.05$；　▲▲$P<0.01$；　与丹参组比较，　°$P<0.05$。　下表同

表 2　各组肾脏形态学的变化　($\bar{x}\pm S$)

组别	肾 系 数 (g/kg)	囊腔内有红细胞 肾小球数（个/50）	肾小管上皮细胞 坏死数(个/100)
对照	4.91±0.73	2.14±1.34	2.28±1.25
模型	6.22±0.98*	14.29±6.63***	20.28±8.32***
丹参	4.87±0.33△△	5.28±6.15*△	11.86±3.71***△
蒲黄	5.55±0.37°▲	4.86±1.07**△△▲▲	12.00±2.52***△
大黄	5.06±0.36△	7.57±1.98***△	11.86±3.02***△

轻，3种中药均有降低血肌酐和尿NAG酶的作用，有增加肌酐清除率、减少近曲小管上皮细胞坏死数目的作用。有实验证明，丹参、蒲黄、大黄之所以具有上述作用，与其药理作用有关。丹参可显著延长小鼠在缺氧状态下的存活时间，使组织中乳酸含量不增加，同时具有抗血凝、抗血栓形成和抗血小板聚集的作用[3]。近年来有人认为丹参有钙拮抗剂样作用，并能拮抗庆大霉素对大鼠皮质 Na-K-ATP 酶活性的抑制[4]。蒲黄能刺激内皮细胞产生PGI_2，而 PGI_2 可强烈扩张血管，抑制血小板聚集[5]，并能提高巨噬细胞的吞噬功能[6]。已有资料表明黄酮类(蒲黄含有黄酮)有钙离子拮抗剂样作用[7]。本文蒲黄减轻大鼠鱼胆中毒所致肾脏的病理改变，肌酐清除率增加等，可能与增加PGI_2、改善中毒后肾血液供应、巨噬细胞清除鱼胆汁毒素的能力增加及阻止细胞钙离子内流有关。

大黄有抑制环氧化酶代谢产物TXA_2生成的作用，而TXA_2有强烈的缩血管和血小板聚集的作用[8]，还具有钙离子拮抗剂样作用。因此大黄具有减轻鱼胆汁中毒致肾脏病理损害的作用[7]，使尿NAG 酶明显降低，其机理可能是通过抑制TXA_2的合成，抗血栓形成，改善中毒后肾脏的血液循环及钙拮抗剂样作用，从而产生防治效果。但第2个24h尿 NAG酶明显低于正常对照组，其原因有待进一步探讨。

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Therapeutic Effects of Chinese Drugs on Early Renal Damage of Rats Caused by Fish Bile

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The therapeutic effects of *Salvia miltiorrhizae, Typha angustifolia, Rheum palmatum* preparations **on early renal** damage of rats caused by fish bile were observed. These drugs were effective **in reducing serum** creatinine, urinary NAGase, count of necrosed epithelial cells of proximal tubule **and that of glomerular** filled with RBC in Bowman's space ($P<0.05$), and also effective in increasing **creatinine** clearance ($P<0.05$).

Key words therapeutic effect, fish bile poisoning, early renal damage,*Salvia miltiorrhizae, Typha angustifolia, Rheum palmatum,* NAGase, creatinine clearance

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Effects of Total Coumarins, Essential Oil and Water Extracts of *Cnidium monnieri* on Plasma Prostaglandin and Cyclic Nucleotide in the Rats of Kidney-Yang Insufficiency

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Effects of total coumarins, essential oil and water extracts of *Cnidium monnieri* on plasma prostaglandin (PGE_2 and $PGF_2\alpha$) and cyclic nucleotide levels in rats of Kidney-Yang insufficiency were studied. 55 rats were divided randomly into 5 groups, Group I was administered orally with saline (normal group), group II was injected with intraperitonally hydrocortison acetate to induce Kidney-Yang insufficiency (control group), group III, group IV and group V (experimental groups) were injected with hydrocortison acetate, the same as group II, and administered orally with the total coumarins, essential oil and water extracts of *Fructus Cnidii* respectively, The levels of plasma PGE_2, $PG_2\alpha$ and plasma cAMP, cGMP were measured. In group II, in comparing with those of group I , the levels of plasma PGE_2, and $PGF_2\alpha$ decreased significantly($P<0.01$), and the value of cAMP/cGMP also lowered obviously($P<0.01$) due to the significant reduction of cAMP and insignificant change of cGMP. In group III and group V, the above-mentioned indices changed significantly ($P<0.01$ or 0.05) compared with those of group II, and after treatment it normalized basically incomparing with those of group I. In group IV, those indices didn't change regularily and apparently as group III and group V did, compared with group II, and could not normalize satisfactorily. It is suggested that the coumarins in the fruit of *Cnidium monnieri* are probably the effective ingredients to invigorate Kidney and strenghten Yang, while the efficacy of essential oil remained unconfirmed.

Key words *Cnidium monnieri,* Kidney-Yang insufficiency, cyclic nucleotide, prostaglandin, coumarin, essential oil

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Quantitative Analysis of 200 Human Tongue Pictures

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Photoelectricity integration was applied to detect and analyse the colorimetric tongue pictures in 200 human beings. The results showed that among various tongue pictures there were evident differences in colorimetric features. This method could also assess the thickness of tongue coating, thus obtaining the colorimetric features including color of tongue proper, color of coating as well as thickness index in common tongue pictures. Therefore it might provide scientific basis for objective and quantitative assessment of tongue pictures in TCM.

Key words photoelectricity integration, tongue picture, colorimetric feature

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