

大承气汤治疗家兔呼吸窘迫综合征的研究

河北中医学院 薛 芳 崔志永 李宏森 李超英 靳红微 楚 立

呼吸窘迫综合征(RDS)与阳明腑实喘满证颇为相似⁽¹⁾, 本实验在“肺与大肠相表里”理论指导下进行大承气汤治疗家兔 RDS 的实验研究。

材料与方法

大承气汤制备: 大黄、芒硝、厚朴、枳实各10g。用水 200ml, 先煮厚朴、枳实 20 分钟, 再入大黄煎 15 分钟, 去滓, 滤取药液 40ml, 溶化芒硝, 分 2 次胃管灌入。

实验方法: 取体重 2~3 kg 健康家兔 47 只, 雌雄不拘, 随机分成空白对照组(17只)、RDS 组(14 只)、实验治疗组(16 只), 均以氨基甲酸乙酯(乌拉坦) 1g/kg 体重静脉注入麻醉。空白对照组行颈部切口手术剥离暴露颈总动脉取血 1 ml, 用丹麦 BME32 型血液气体分析仪测定 PaO_2 。RDS 组、实验治疗组静脉注入油酸 0.08ml/kg 体重制成 RDS 模型⁽²⁾。RDS 组注入油酸后观察排便、排尿情况; 7 小时颈总动脉取血 1 ml 测 PaO_2 , 动脉放血处死后, 剖开胸腔取全肺组织观察肺体积, 肺表面颜色、病变, 气管有无泡沫样液体溢出, 测量肺系数; 全肺组织用 10% 福尔马林液固定, 切取两肺下叶背侧, 常规脱水, 石蜡包埋, 5 μ m 切片, 苏木素-伊红染色, 进行病理观察; 剖开腹腔观察肠腔充盈。实验治疗组注入油酸(剂量同 RDS 组) 1 小时后胃管灌入大承气汤药液 20ml, 3 小时再灌入 20ml, 观察排便、排尿情况, 7 小时取血 1 ml 测 PaO_2 , 放血处死后检查内容和方法同 RDS 组。

结 果

一、 PaO_2 测定: 空白对照组 84.17 ± 2.55 mmHg ($\bar{X} \pm SD$, 下同), RDS 组 64.48 ± 2.81 mmHg, 实验治疗组 80.37 ± 5.53 mmHg。RDS 组低于空白对照组, 差异有非常显著性意义 ($P < 0.01$); 实验治疗组高于 RDS 组, 与之相比差异有显著性意义 ($P < 0.05$), 低于空白对照组, 但差异无显著性意义 ($P > 0.05$)。

二、肺系数(肺重/体重): 正常家兔肺系数为 4~5。RDS 组 8.34 ± 1.3 , 较之增大; 实验治疗组 5.83 ± 0.88 , 虽高于正常肺系数, 但比 RDS 组小, 两者相比差异有非常显著性意义 ($P < 0.01$)。

三、病理观察: RDS 组肉眼所见: 肺体积显著增大, 表面呈红褐色或暗紫色, 可见弥漫的大片状出

血、瘀血斑, 气管内有多量粉红色泡沫样液体溢出, 肺切面亦可见溢出的血性泡沫样液体。镜下可见大片肺水肿、肺出血及肺泡腔内透明膜形成, 毛细血管内见到中性粒细胞聚集, 亦可见微血栓形成, 血管及支气管周围有间质水肿及出血。实验治疗组肉眼所见: 肺体积较小, 表面多为红褐色, 两肺下野可见散在的小片状出血、瘀血斑, 3 只气管内无泡沫样液体, 13 只气管内有粉红色泡沫样液体溢出。镜下所见, 肺水肿、肺出血等病变均较 RDS 组明显减轻。

四、实验中 RDS 组有少量尿液排出, 并排出少量球状干燥粪便, 处死剖腹后肠腔无充盈; 实验治疗组尿量增多, 排出多量粪便, 先为球状, 后变稀软, 处死剖腹后肠腔显著充盈膨胀, 内有多量水液。

讨 论

本实验证明大承气汤对家兔 RDS 有提高 PaO_2 和改善肺组织病变的治疗作用。由于 RDS 出现肺水肿、肺出血、血管内微血栓形成等病理改变, 致使肺气郁闭, 宣降失常, 扰乱了“肺与大肠相表里”的生理状态, 引起胃肠气机窒塞⁽¹⁾; 胃肠气机不畅, 必然加重肺气郁闭。大承气汤本为泻下通腑方剂, 具有增强胃肠道蠕动、增加胃肠道容积、改善胃肠道血液循环、降低毛细血管通透性作用⁽³⁾, 同时还能加快微循环血流速度⁽⁴⁾, 这些作用对改善家兔 RDS 肺组织病变, 提高肺的换气功能, 升高 PaO_2 是有积极意义的。实验治疗组灌入大承气汤后, 尿量增多, 排出多量稀软粪便, 剖腹后肠腔显著膨胀充盈, 内含多量水液, 而组织学检查肺部病变明显减轻, 可能是通过大承气汤的泻下通腑作用, 促使肺与大肠相表里的机能状态得到恢复。为临床应用大承气汤治疗 RDS 提供了动物实验依据。

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Comparative Study on Pharmacological Function of Back-Shell and Plastron of Tortoise

Tortoise Shell Study Group, Written by Yang Meixiang(杨梅香)

Institute of Traumatology and Orthopedics, China Academy of TCM, Beijing

In this dissertation, the results of a comparative study on the pharmacological function and toxicity of back-shell and plastron of tortoise are reported. Since most of the patients with hyperthyroidism were characterized by Yin(阴)-deficiency, rats were prepared as animal models with Yin-deficiency, induced by subcutaneous injection of T_3 50 $\mu\text{g}/100\text{g}$. Over 20 indices on the function of thyroid gland, adrenal gland, immunoactivity and trace elements, which were considered vital in diagnosing Yin-deficiency, were measured. The results indicate that both back-shell and plastron of tortoise possess identical Yin-nourishing property. The mechanism of Yin-nourishing is closely related to decreasing the function of thyroid and adrenal gland, increasing the function of immunoactivity as well as the decreasing of Cu in serum. The maximal tolerant doses (MTD)-250 g/kg prepared from back-shell and plastron are respectively tried on mice, demonstrating very low toxicity. It is thus evident that the above results provide laboratory evidence for the equal utilization of back-shell and plastron.

(Original article on page 279)

Prevention against Free Radical Damage in Mice with *Cynanchum auriculatum*

Guo Zaozheng(郭肇铮), Lu Yongcai(卢咏才), Liu Xiaoqing(刘小青), et al

Beijing College of TCM, Beijing

Mice (NIH) of 27 ± 3 g were divided into: I. control group, II. model group and III. *Cynanchum auriculatum* Royle ex Wight (CARW) group. Group II was modelled by caging mice in an ozone room of 0.9 ppm concentration for 10 days. A dose of 60 mg CARW/day was given to the mice group III for 20 consecutive days, 10 days prior to and 10 days during the ozone inhalation together with the model mice. The results showed that the ozone inhalation was injurious to mice resulted in significant increase of SOD activity of red blood cell, LPO content in lung, liver and brain-tissue, and MAO content in brain, while in CARW group, the value of corresponding indices mentioned above was lowered and normalized. Physically the CARW mice got restoration of strength and health from debilitated condition caused by ozone damage and were much more tolerant to cold than model mice. These results indicated that CARW displayed an inhibitory effect on ozone induced free radical damage. The action of CARW may be helpful for use as an effective medicine for delaying aging process.

(Original article on page 282)

Study on Dachengqi Decoction(大承气汤) in Treating Rabbits' Respiratory Distress Syndrome

Xue Fang(薛芳), et al

Hebei College of TCM, Shijiazhuang

47 rabbits were randomly divided into 3 groups: (1) 17 animals for the control group; (2) 14 for respiratory distress syndrome (RDS) group; (3) 16 for treated group. The RDS model were made with oleic acid. PaO_2 and morphologic changes of lung tissue were checked after Dachengqi decoction was given per os to the rabbits. Results showed that the PaO_2 raised and the lung lesions improved on the rabbits of RDS which provided the experimental basis for the treatment of RDS.

(Original article on page 285)

Antitumor Effect of Gypenoside

Wang Yuqin(王钰琴), et al

Beijing College of TCM, Beijing

Investigations were made on the antitumor activity of Gypenoside which was isolated from *Gynostemma pentaphyllum*. (1) Mice were transplanted with S-180 subcutaneously on their backs and drug was given per os or by intraperitoneal injection from third day on for 10 days after the tumor transplantation. The results showed that Gypenoside was able to inhibit the tumor growth. In the group given 30 mg/kg per os inhibitory rate of the tumor growth reached 87% ($P < 0.001$). (2) In vitro studies showed that Gypenoside was toxic to S-180 cells. When concentrations of the drug were 3.75, 5.5 and 7.5 mg/ml the red staining rate of tumor cells were 54%, 83% and 88% respectively. These results suggest that Gypenoside possesses antitumor activity through a direct cytotoxic action.

(Original article on page 286)