中国药理学与毒理学杂志 2009 23 (5): 381-387 ISSN: 1000-3002 CN: 11-1115/R

论著

二氢杨梅素对大鼠免疫性慢性胃炎胃黏膜的保护作用及其机制

陈立峰, 张 琼, 董倩倩

(湖南省中医药研究院中药研究所, 湖南 长沙 410013)

收稿日期 2009-2-7 修回日期 网络版发布日期 2009-9-30 接受日期 2009-5-26

摘要 目的 研究二氢杨梅素(DMY)对免疫性慢性胃炎大鼠胃黏膜的保护作用及其作用机制，为DMY用于防治慢性胃炎提供实验依据。方法 皮下注射给予SD大鼠同种异体胃黏膜匀浆与弗氏完全佐剂制成的免疫抗原，每15 d免疫1次，共3次，制备免疫性慢性胃炎模型。第2次免疫注射的同时，正常对照组和模型组ig给予蒸馏水，给药组ig给予DMY (50，100和200 mg·kg^{-1})或瑞巴派特(27 mg·kg-1)，每天1次，共30 d。末次给药后第2天，处死大鼠，采用酸碱滴定法测定胃游离酸(FA)和总酸(TA)含量，阿尔新蓝法测定胃游离黏液量，放射免疫法测定血清胃泌素(GAS)和血浆胃动素(MOT)水平，比色法测定血清总超氧化物歧化酶(SOD)、铜-锌-SOD(Cu-Zn-SOD)、锰-SOD(Mn-SOD)和诱导型一氧化氮合酶(iNOS)活性及丙二醛(MDA)和一氧化氮(NO)含量，ELISA法测定血清白细胞介素2(IL-2)，IL-4和免疫球蛋白G(IgG)水平，并取胃黏膜做组织病理学检查。结果 与正常对照组比较，模型组大鼠除血浆MOT水平无明显变化外，其他检测指标均出现病理性变化。DMY对模型组病理性变化均有明显改善作用，可增加胃酸的分泌，减少胃液中游离黏液量，降低血清GAS水平，但对血浆MOT无明显影响；大鼠胃黏膜病理改变明显减轻，炎症细胞浸润明显减少，炎症评分明显下降；提高总SOD，Cu-Zn-SOD和Mn-SOD活性，抑制MDA的生成，降低iNOS活性，减少NO生成；降低血清IL-4和IgG水平，升高IL-2水平。结论 DMY对免疫性慢性胃炎大鼠胃黏膜具有明显的保护作用，该作用机制可能为调节机体免疫功能，抑制胃黏膜的自身免疫作用；增强氧自由基清除酶系统和降低NO生成酶系统的活性，抑制体内脂质过氧化物的生成。

关键词 二氢杨梅素 胃炎 胃黏膜 免疫

分类号 R285，R975

Protective effect and mechanism of dihydromyricetin on gastric mucosal injury of autoimmune chronic gastritis rats

CHEN Li-Feng, ZHANG Qiong, DONG Qian-Qian

(Institute of Materia Medica, Hunan Academy of Traditional Chinese Medicine and Materia Medica, Changsha 410013, China)

Abstract

AIM To study the protective effect of dihydromyricetin (DMY) on gastric mucosal injury of autoimmune chronic gastritis rats and mechanisms in order to provide experimental basis for DMY′s applying in prevention and treatment on chronic gastritis. **METHODS** To emulsify supernatant of homogeneous gastric mucosa from Sprague-Dawley rats and Freund′s complete adjuvant (FCA) as immunogen was subcutaneously injected into rat back and both sides of inguinals once every 15 d for 3 times to establish rat chronic gastritis model. At the same time of the second immunogen injection，DMY(50，100 and 200 mg·kg^{-1}) or rebamipide(27 mg·kg^{-1}) as positive control, were intragastrically administered once daily for 30 d. Water was used instead of drugs in normal and model groups. The rats were sacrificed on the next day after the last administration. The contents of total and free acids (TA and FA) were measured by acid-base titration and the content of free mucus was measured by alcian blue assay in gastric juice. The levels of gastrin and motilin were determined by radioimmunoassay，and the activities of total superoxide dismutase (SOD), Cu-Zn-SOD, Mn-SOD and inducible nitric-oxide synthase (iNOS)，and the levels of malondialdehyde (MDA) and nitric oxide (NO) were determined by spectrophotometry. The levels of interleukin-2 (IL-2)，IL-4 and immunoglobulin G (IgG) were assayed with ELISA. The histopathology of gastric mucosa was examined under the microscope. **RESULTS** Compared with normal control, all detected indexes in model group changed pathologically except plasma motilin level. DMY significantly ameliorated these pathologically changed indexes of model rats. DMY increased contents of TA and FA, also decreased content of free mucus in gastric juice and gastrin level in serum，and had no effect on motilin in plasma; remarkably reduced inflammatory cells filtration into gastric mucosa tissue and the scores of inflammation, and obviously improved the histopathological changes in gastric mucosa; significantly raised total SOD, Cu-Zn-SOD, and Mn-SOD activities and reduced iNOS activity; inhibited production of MDA and NO; lowered IgG and IL-4 levels, and increased IL-2 levels. **CONCLUSION** DMY can significantly protect gastric mucosa from injury of chronic gastritis. Its mechanism maybe that DMY can regulate the body immune functions to inhibit the autoimmune reaction; or it can up-regulate the activity of enzyme system eliminating oxygen free radical and down-regulate activity of enzyme system producing NO, and then to inhibit lipid peroxidation.

Key words dihydromyricetin gastritis gastric mucosa immunity

DOI: 10.3867/j.issn.1000-3002.2009.05.008

通讯作者 陈立峰 chenlifg@163.com