

论著

平肝潜阳方对偏头痛肝阳上亢证大鼠血淋巴细胞蛋白质表达的影响

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摘要:

目的: 探讨平肝潜阳方对偏头痛肝阳上亢证大鼠作用的分子机制。方法: 用电刺激SD大鼠三叉神经节的方法并灌服附子汤复制偏头痛肝阳上亢证模型, 采用平肝潜阳方中药进行干预。运用双向凝胶电泳技术分离偏头痛肝阳上亢证大鼠血淋巴细胞的总蛋白, 图像分析识别差异表达的蛋白质点, 基质辅助激光解吸电离飞行时间质谱得到相应的肽质量指纹图, 搜索数据库鉴定蛋白质。结果: 平肝潜阳方能够明显改善偏头痛大鼠的头痛等症状, 得到分辨率及重复性较好的正常大鼠、偏头痛肝阳上亢证大鼠、中药治疗大鼠血淋巴细胞的的双向凝胶电泳图谱; 共得到13肽质量指纹图谱, 2个无质谱结果, 搜索到具有统计学意义的蛋白质11个, 包括乙醇脱氢酶3, 糖原磷酸化酶, ATP合酶D链, 膜联蛋白-3, 泛素, 中性粒细胞防御素4前体, 黑素瘤相关性E2抗原, 热休克蛋白-27, 膜联蛋白-A1, 硫氧还蛋白过氧化物酶-II, 谷胱甘肽合成转移酶片断。结论: 平肝潜阳方治疗后的偏头痛肝阳上亢证大鼠血淋巴细胞蛋白质的表达与治疗前比较有差异, 所鉴定的11个蛋白质可能与平肝潜阳方的作用机制有关。

关键词: 平肝潜阳方 蛋白质组学 偏头痛 肝阳上亢证 血淋巴细胞

Effect of the formulae for calming the liver and suppressing YANG on lymphocyte proteome in migraine rats with syndrome of hyperactivity of liver-YANG

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Abstract:

Objective To explore the molecular mechanism of the formulae for calming the liver and suppressing YANG in migraine rat model with syndrome of hyperactivity of the liver-YANG. Methods A rat model of migraine with hyperactivity of liver-YANG was established through electrical trigeminal ganglion stimulation and syndrome of oral administration of Fuzi decoction. The total proteins of the lymphocyte in the rats were separated by immobilized pH gradient-based 2-dimensional gel electrophoresis(2-DE), and the 2-DE image was analyzed by PDQuest 7.0 software. Matrix-assisted laser desorption/ionization-time of flight mass spectrometry (MALDI-TOF-MS) and the SWISS-PORT and MSDB database were used to identify differential proteins. Results The formulae for calming the liver and suppressing YANG could also improve headache. Well-resolution and reproducible 2-DE patterns of rat lymphocyte from normal, model, and therapy tissues were obtained. Eleven of the total 13 differential protein spots were successfully identified by MALDI-TOF-MS. These proteins were alcohol dehydrogenase 3(ADH3), glycogen phosphorylase, ATP synthase D chain, annexin-3, ubiquitin, neutrophil defensin 4 precursor, melanoma-associated antigen E2, heat shock protein-27, annexin-A1, peroxiredoxin-II, MU class glutathione S-transferase (Fragment)(GSH). Conclusion Differences occur in the expression of lymphocyte proteins in migraine rats with syndrome of hyperactivity of liver-YANG after treatment with the formulae for calming the liver and suppressing YANG, and the 11 identified protein spots may be associated with its mechanism.

Keywords: formulae for calming the liver and suppressing YANG; proteomics; migraine; syndrome hyperactivity of liver-YANG; lymphocyte

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