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# 中药更年春(GNC)方对去势大鼠学习记忆能力及下丘脑神经递质的影响

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# Effect of Gengnianchun (GNC) formula on the ability of learning and memory and neurotransmitter of hypothalamus in ovariectomized rats

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摘要 图/表 参考文献 相关文章 (0)

全文: PDF (909 KB) HTML (0 KB)

输出: BibTeX | EndNote (RIS)

**摘要**

目的 观察中药更年春方(Gengnianchun,GNC)对去势大鼠学习记忆能力及下丘脑内神经递质的影响。方法 分为两批实验,均选用3月龄SD雌性大鼠,随机分为卵巢切除(ovariectomy,OVX)组、OVX+GNC组、OVX+戊酸雌二醇(estradiol valerate,E2)组、OVX组、Sham+GNC组和Sham组,第1批实验连续灌药3个月后经Morris水迷宫实验检测各组大鼠的学习记忆能力。第2批实验连续灌药1个月后采用高效液相色谱法检测各组大鼠下丘脑内神经递质去甲肾上腺素(NE)、多巴胺(DA)、5-羟色胺(5 HT)和5-羟吲哚乙酸(5-HIAA)的水平。结果 第1批实验中OVX1组与Sham1组比较,学习记忆能力明显减退(P<0.05);OVX1+GNC组、OVX1+ E2组与OVX1组比较,学习记忆能力明显增强(P<0.05);Sham1+GNC组与Sham1组比较,学习记忆能力明显减退(P<0.05)。第2批实验中,OVX2组与Sham2组比较,NE、DA含量明显减少(P<0.05),5-HT、5-HIAA含量明显增加(P<0.05);OVX2+GNC组、OVX2+ E2组与OVX2组比较,NE、DA含量明显增加(P<0.05),5-HT、5-HIAA含量明显减少(P<0.05);Sham2+GNC组与Sham2组比较,NE、DA、5-HT、5-HIAA之间无明显差异(P>0.05)。结论 GNC具有提高去势大鼠学习记忆能力的作用,并可维持下丘脑内神经递质的平衡,但未出现卵巢功能衰退则不宜补充GNC。

关键词： 更年春(GNC)中药, 去势大鼠, 学习记忆能力, 神经递质

**Abstract**:

Objective To study the effect of Gengnianchun formula (GNC) on learing and neurotransmitter of hypothalamus in ovariectomized rats.Methods The study included 2 experiments.Three-month old SD rats were randomized into OVX group,OVX+GNC group,OVX+ estradiol valerate (E2) group,sham operation (Sham) group and Sham+GNC group.The 5 experiment lasted for 3 months,and changes of learning memory ability were tested by Morris water maze.The 2nd one lasted for 1 month,and the level of neurotransmitter in hypothalamus (NE,DA,5-HT,5-HIAA) were measured by high-performance liquid chromatography (HPLC).Results In the first experiment,ovariectomy,the learning and memory ability of OVX1 group and sham1+GNC group was markedly decreased compared with rats in Sham1 group (P< 0.05).While in OVX1+GNC and OVX1+E 2 group,the learning and memory was improved markedly compared with OVX1 group (P<0.05).In the second experiment,NE and DA level in hypothalamus were decreased markedly,but 5-HT and 5-HIAA level in hypothalamus were markedly improved in OVX2 group than in sham2 group (P<0.05).NE and DA level in hypothalamus were improved,and 5-HT and 5-HIAA level in hypothalamus were decreased in OVX2+GNC and OVX2+E 2 group compared with OVX2 group (P<0.05).But no significant change was observed in neurotransmitters level in hypothalamus between Sham2 group and Sham2 +GNC group.Conclusions GNC can improve the ability of learning and memory,and regulate the disorderly neurotransmitter in hypothalamus.But the rats without ovarian failure are not suit for GNC.

**Key words**: Gengnianchun (GNC) formula ovariectomized rat learning and memory ability hypothalamus neurotransmitter

**基金资助:**

上海市卫生局中药新药及院内制剂研发项目(2011XY002);上海市中医药事业发展三年行动计划-上海市名老中医学术经验研究工作室建设项目(ZYSNXD-CC-MZY030)

**引用本文:**

饶艳秋1▲;陈品丽1,2,3▲;程明军2;王文君1,2,3△;俞瑾1,2,3. 中药更年春(GNC)方对去势大鼠学习记忆能力及下丘脑神经递质的影响[J]. 复旦学报(医学版), 2014, 41(05): 631-636. RAO Yan-qiu1▲, CHEN Pin-li1,2,3▲,CHENG Ming-jun1,2,3, WANG Wen-jun1,2,3△, YU Jin1,2,3. Effect of Gengnianchun (GNC) formula on the ability of learning and memory and neurotransmitter of hypothalamus in ovariectomized rats. jms, 2014, 41(05): 631-636.

**链接本文:**

http://jms.fudan.edu.cn/CN/10.3969/j.issn.1672 8467.2014.05.010 或 http://jms.fudan.edu.cn/CN/Y2014/V41/I05/631

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主办单位：复旦大学 电话：021-54237314,54237164 国内发行：上海市报刊发行处

编辑出版：《复旦学报（医学版）》编辑部 E-mail：xbyxb@shmu.edu.cn 国外发行：中国国际图书贸易总公司（北京399信箱，邮编100044）

地址：上海市医学院路138号285信箱 刊号：ISSN 1672-8467 CN 31-1885/R 邮发代号：国内4-262 国外 BM199