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论著

当归芍药散活性部位JD-30对淀粉样β蛋白片段25-35抑制大鼠海马脑片CA1区长时程增强的改善作用

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摘要 目的 研究当归芍药散改善学习记忆能力的物质基础和作用机理。方法 细胞外微电极记录技术，记录大鼠海马脑片CA1区群峰电位（PS）幅值和高频刺激诱发LTP后PS的增幅。结果 当归芍药散活性部位JD-30（25，50和100 mg·L^{-1}）的人工脑脊液灌流大鼠海马脑片，其CA1区的PS幅值无明显变化。用相同浓度的JD-30孵育海马脑片90 min以上并持续灌流，其CA1区高频刺激后的PS增幅与空白对照组相比无明显差异。而用$A\beta_{25-35}$ 200 nmol·L^{-1}处理的海马脑片CA1区高频刺激后的PS增幅受到明显抑制；若同时给予$A\beta_{25-35}$和上述浓度的JD-30处理海马脑片，CA1区高频刺激后的PS增幅较$A\beta_{25-35}$组升高，其中JD-30 100 mg·L^{-1}组的PS增幅达到正常对照组水平。提示JD-30对正常海马脑片CA1区的基础突触传递和LTP没有影响，但可改善$A\beta_{25-35}$所抑制的LTP。结论 JD-30可改善神经突触可塑性，拮抗 Aβ 对LTP 的抑制作用可能是其益智机制之一。

关键词 活性部位, 当归芍药散 淀粉样β蛋白 海马 长时程增强 微电极
分类号 R282.5,R971

JD-30, an active constituent extracted from Danggui Shaoyao San,ameliorates amyloid beta-protein fragment 25-35 induced inhibition of long-term potentiation of CA1 area in rat hippocampal slices

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Abstract

AIM To study the material base and mechanism of cognition enhancing effect of Danggui Shaoyao San (DSS, also named Toki-shakuyaku-san in Japanese). **METHODS** By using extracellular microelectrode recording technique, population spike (PS) and long-germ potentiation(LTP) of CA1 area in hippocampal slices were induced and recorded.
RESLUTS Perfused with JD-30(25, 50 and 100 mg·L^{-1}), an active constituent extracted from DSS, had no effect on PS amplitude of CA1 area in hippocampal slices. Incubated and perfused with the same concentrations of JD-30 had no effect on PS amplification of CA1 area after high frequency stimulation. Treatment with $A\beta_{25-35}$ 200 nmol·L^{-1} significant depressed PS amplification of CA1 area, and the inhibition by $A\beta_{25-35}$ was ameliorated by JD-30. Especially, JD-30 100 mg·L^{-1} retrieved PS amplification to the normal group level. **CONCLUSION** JD-30 may improve synaptic plasticity, and it is possibly one of the mechanisms for its cognition enhancement action to ameliorate the inhibition of Aβ on LTP.

Key words active fraction Danggui Shaoyao San amyloid beta-protein hippocampus long-term potentiation microelectrodes

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