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论著

芬太尼对人外周血NF-κB活性的影响

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摘要 目的 验证芬太尼是否影响免疫炎症反应中的某些因素，如同吗啡。方法 外周血取自7个正常志愿者，实验分为正常对照组、芬太尼（20 μg·L^{-1}和2 mg·L^{-1}）组、模型组（脂多糖，LPS组）和治疗组（芬太尼20 μg·L^{-1}+LPS、芬太尼2 mg·L^{-1}+LPS）。用流式细胞术检测人外周血中性粒细胞和单核细胞中核因子(NF-κB)活性，用ELISA检测血清中肿瘤坏死因子-α(TNF-α)和白介素-6(IL-6)含量。结果 芬太尼组NF-κB活性及TNF-α和IL-6含量与正常对照组比较，均无明显差异(P>0.05)。治疗组（芬太尼20 μg·L^{-1}+LPS、芬太尼2 mg·L^{-1}+LPS）中NF-κB的活性分别为81.9%，76.1%(中性粒细胞)和78.6%，72.6%(单核细胞)，明显低于模型组88.9%和85.1%(P<0.01)。TNF-α含量在治疗组（芬太尼20 μg·L^{-1}+LPS、芬太尼2 mg·L^{-1}+LPS）为459和357 ng·L^{-1}，IL-6为796和720 ng·L^{-1}，两者均低于模型组(其中TNF-α为226 ng·L^{-1}，IL-6为1563 ng·L^{-1})(P<0.01)。结论 芬太尼对NF-κB的活性及TNF-α和IL-6的含量无影响，但可抑制LPS诱导的NF-κB的活性及TNF-α和IL-6的含量，且高剂量芬太尼的抑制作用大于低剂量芬太尼的作用。

关键词 芬太尼 核因子-κB 肿瘤坏死因子 白介素-6

分类号 R971.2

扩展功能

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Effects of fentanyl on activation nuclear factor-kappaB in human whole blood

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Abstract

AIM To clarify if fentanyl affects some factors in immunity and inflammation as morphine did. **METHODS** Blood samples were collected from 7 healthy volunteers. Each was divided into 6 parts: normal control, fentanyl(20 μg·L^{-1} or 2 mg·L^{-1}) control, lipopolysaccharide(LPS) alone and fentanyl 20 μg·L^{-1} or 2 mg·L^{-1}+LPS. The nuclear factor- kappaB(NF-κB) activation in human neutrophils and monocytes was examined by flow cytometric analysis, the plasma tumor necrosis factorα(TNF-α) and interleukin-6(IL-6) concentrations were measured using ELISA. **RESULTS** The low NF- κB activation (2.8%—4.0%) and TNF-α and IL- 6 production was no significant difference in normal control and fentanyl control(P>0.05). The NF-κB activation in treatment groups(fentanyl 20 μg·L^{-1}+LPS, fentanyl 2 mg·L^{-1}+LPS) were 81.9% and 76.1% in neutrophils and 78.6% and 72.6% in monocytes, respectively, which were less than those in LPS alone group（88.9% and 85.1%, P<0.01). TNF-α production in treatment groups (fentanyl 20 μg·L^{-1}+LPS, fentanyl 2 mg·L^{-1}+LPS) and LPS group were 459, 357 and 1226 ng·L^{-1}, IL- 6 were 796, 720 and 1563 ng·L^{-1}, respectively. The differences were significant between treatment groups and LPS one(P<0.01). **CONCLUSION** Fentanyl alone has no effect on NF- κB activation and TNF-α and IL-6 production, but attenuates LPS-induced NF- κB activation and TNF-α and IL-6 production.

Key words fentanyl nuclear factor-kappaB tumor necrosis factors interleukin-6

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