

论著

IL-10 抑制大鼠炎性肉芽肿摄取¹⁸F-FDG 分析

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摘要: 目的: 研究大鼠白介素-10 (IL-10)对SD大鼠白细胞和炎性肉芽肿¹⁸F-脱氧葡萄糖(¹⁸F-FDG)摄取的抑制情况。方法: 8只大鼠白细胞分别分成等量两份。其中一份加入 0.2 mL IL-10 (0.1 mg/mL),另一份不加。水浴中静置120 min后,两份均加¹⁸F-FDG 1.85 MBq,60 min后PBS洗涤离心,测量沉淀计数。计算白细胞摄取率。采用弗氏完全佐剂和牛血清白蛋白建立大鼠炎性肉芽肿模型。8只大鼠按10 μg/kg经尾静脉注射IL-10,60 min后每只大鼠注入¹⁸F-FDG约7.4 MBq,60 min后PET显像。第2天不注射IL-10下进行同样显像。对肉芽肿组织进行病理学检查。结果: 在体外试验中,8组SD大鼠血白细胞配对组中,未加入IL-10的白细胞组摄取率为(50.3±6.7)%,加入IL-10的摄取率为(34.6±3.5)%,差异有统计学意义($t=8.9, P<0.01$); 平均抑制率为31.2%。在IL-10干预下的8只大鼠炎性肉芽肿¹⁸F-FDG显像试验中,在注射和未注射IL-10的情况下,其标准摄取值(SUV)分别为1.7±0.4和2.1±0.3 ($t=20.6, P<0.01$)。平均抑制率为19.5%。结论: IL-10可以降低大鼠炎性肉芽肿的糖代谢。

关键词: 白介素-10 ¹⁸F-FDG 炎性肉芽肿

IL-10 suppresses inflammatory granuloma uptake of ¹⁸F-FDG in rats

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Abstract: Objective: To evaluate the effectiveness of IL-10 in suppressing ¹⁸F-FDG uptake in the inflammatory granuloma of SD rats. Methods: Eight SD rats were killed, and their blood was collected sterily. After centrifugation, the white blood cells were incubated in PRMI 1640 for 3 days. Then each culture flask of white blood cells was divided into two equal parts. To one group was added 0.2 mL IL-10 solution (0.1 mg/mL); to the control was added with 0.2 mL of 0.9% sodium chloride solution. All cells were then incubated for 120 minutes at 37 °C, after which ¹⁸F-FDG (1.85 MBq) was added. Sixty minutes later, the cells were washed twice with PBS and the extent of uptake ¹⁸F-FDG determined. In vivo, an inflammatory granuloma was produced by hypodermic injection of rats with a mixture of Freund's complete adjuvant, bovine serum albumin and talcum powder. Each rat was maintained for 8 weeks. Imaging of the inflammatory granulomas was performed using the ¹⁸F-FDG signal. IL-10 was injected into SD rats at 10 μg/kg of body weight. Sixty minutes later, 7.4 MBq of ¹⁸F-FDG were injected, and, after a further 60 minutes, the rats underwent a PET-CT scan. The region of interest (ROI) of the inflammatory granuloma was delineated and the standard uptake value (SUV) calculated. A second PET-CT scan was done without IL-10 on the next day. The granulomatous tissue underwent pathological examination. Results: In the intro test, the with blood cell uptaking ratio of ¹⁸F-FDG was (50.3±6.7)% without IL-10, and (34.6±3.5)% with IL-10($t=8.9, P<0.01$). IL-10 suppressed the rat white blood cell uptaking ¹⁸F-FDG. In the PET-CT scan, the SUV of ROI on inflammatory granuloma was 1.7±0.4 with IL-10 and 2.1±0.3 without IL-10 ($t=20.6, P<0.01$). IL-10 suppressed the inflammatory granuloma uptaking ¹⁸F-FDG. Conclusion: IL-10 can suppress the inflammatory granuloma of SD rats uptaking ¹⁸F-FDG.

Keywords: IL-10 ¹⁸F-FDG inflammatory granuloma

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