

论著

高脂饮食兔肺泡巨噬细胞 $[Ca^{2+}]_i$ 及ACE活性变化

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摘要 目的: 了解高脂饮食对兔肺泡巨噬细胞胞浆游离钙浓度 ($[Ca^{2+}]_i$) 及血管紧张素 I 转换酶 (ACE) 活性的影响, 探索哮喘与高脂饮食相关的可能机制。方法: 高胆固醇饮食法建立高脂兔模型 (n=6), 8 周后离体支气管肺泡灌洗; Fura2/am 测定肺泡巨噬细胞 $[Ca^{2+}]_i$, 紫外法检测 ACE 活性。结果: 高脂组肺泡巨噬细胞 $[Ca^{2+}]_i$ 显著高于正常组 (P<0.01); 其支气管肺泡灌洗液 (BALF) 及肺泡巨噬细胞上清液中 ACE 活性显著高于正常组 (均 P<0.01); 高脂组 BALF 中肺泡巨噬细胞数、肺泡巨噬细胞 $[Ca^{2+}]_i$ 及肺泡巨噬细胞培养上清液 ACE 活性均与血清总胆固醇含量呈正相关, r 分别为 0.851、0.840、0.847 (均 P<0.05)。结论: 高脂饮食导致兔肺泡巨噬细胞活化, 活性增高的肺泡巨噬细胞处于易激状态。

关键词 高脂饮食 巨噬细胞 血管紧张素转换酶 钙 兔

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Changes of $[Ca^{2+}]_i$ and the activity of ACE in alveolar macrophages of rabbits with high-fat diet

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Abstract

AIM: To investigate the effects of high-fat diet on the level of intracellular free calcium ($[Ca^{2+}]_i$) and the activity of angiotensin I converting enzyme (ACE) in alveolar macrophages (AMs) of rabbits. The association between asthma and high-fat diet was also observed. METHODS: Twelve male New Zealand rabbits were medially divided into normal diet group and 1.2% high-cholesterol diet group randomly. 8 weeks later, bronchial alveolar lavage was performed in vitro. $[Ca^{2+}]_i$ was determined by Fluo-2/am. The activity of ACE was detected with ultraviolet method. RESULTS: The levels of $[Ca^{2+}]_i$ in AMs greatly increased (P<0.01). The activity of ACE both in BALF and in culture supernatants of AMs was all greatly increased compared with normal diet group (P<0.01). In hypercholesterolemic group the number of macrophages in BALF showed a positive correlation with the content of cholesterol in serum, such as the level of $[Ca^{2+}]_i$ in AMs and the activity of ACE in the culture supernatants of AMs (all P<0.05). CONCLUSION: The results suggest that AMs of rabbits may be activated by hyperlipidemia and become easy to be stimulated.

Key words High-fat diet Macrophages Angiotensin converting enzyme Calcium Rabbits

扩展功能

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