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论著

GLP-1（7－36）及其拟似物Exendin-4阻断高血糖诱导的胰腺血流重分布

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摘要
目的 测定GLP-1和Exendin-4对大鼠胰岛微循环的影响。方法 大鼠随机分为生理盐水组（NS）和葡萄糖组（GLU）；每组再分为3个亚组，分别为对照组、GLP-1组和Exendin-4组。采用微球技术测定大鼠胰腺血流（pancreatic blood flow, PBF）和胰岛血流(islet blood flow, IBF）。用ELISA法测定血清胰岛素。结果 GLP-1和Exendin-4不影响基础胰岛微循环，但降低糖负荷后IBF/PBF比值（GLP-1组为11.47%±1.11% vs 14.33%±0.53%;Exendin-4组为11.25%±1.26% vs 14.33%±0.53%, P<0.05)，阻断高血糖诱导的胰腺血流向胰岛内重分布。GLP-1对基础和糖负荷后血糖无影响，Exendin-4 显著降低基础血糖(4.1±0.23 mmol/L vs 5.4±0.37 mmol/L,P<0.05)和糖负荷后血糖(17.9±0.97 mmol/L vs 22.0±0.69 mmol/L, P<0.05)。结论 GLP-1和其长效拟似物Exendin-4能有效调节糖负荷后的胰岛微循环。

关键词

GLP-1；Exendin-4；胰岛微循环；微球技术

分类号

GLP-1 and Exendin-4 prevent the re-distribution of pancreatic islet perfusion stimulated by glucose administration

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Abstract
Objective To evaluate the effects of GLP-1 and Exendin-1 on islet microcirculation in rats. Methods Adult male Wistar rats were randomly divided into two groups injected with either saline or glucose. Each group was further divided into 3 subgroups administered i.v with either GLP-1, Exendin-4 or saline respectively. A microsphere technique was adopted to measure the pancreatic blood flow (PBF) and pancreatic islet blood flow (IBF). Results Neither GLP-1 nor Exendin-4 affected basal islet microcirculation, however, both of them significantly decreased fraction IBF out of PBF (11.47%±1.11% vs 14.33%±0.53% for GLP-1;11.25%±1.26% vs 14.33%±0.53% for Exendin-4, P<0.05 respectively) in hyperglycemic rats, thus prevented the glucose-induced blood flow redistribution in favor of islet. GLP-1 did not affect blood glucose in either basal state or after intravenous glucose load, while intravenous injection of Exendin-4 significantly decreased both basal blood glucose level (4.1±0.23 mmol/L vs 5.4±0.37 mmol/L,P<0.05) and post-load blood glucose level (17.9±0.97 mmol/L vs 22.0±0.69 mmol/L,P<0.05). Conclusion GLP-1 and its long acting analogue Exednin-4 modulate pancreatic islet microcirculation after intravenous glucose administration.

Key words GLP-1 Exendin-4 islet microcirculation a microsphere technique

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