

论著

离体大鼠肾灌注聚乙二醇修饰牛血红蛋白时的肾功能

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摘要 目的 观察聚乙二醇修饰牛血红蛋白(PEG-Hb)是否理想的血液代用品。方法 分别以PEG-Hb 60, 30, 15和6 g·L⁻¹浓度灌注大鼠离体肾脏, 测定肾功能。结果 60 g·L⁻¹ PEG-Hb灌注后引起肾小球滤过率明显降低, 在30, 60, 90和120 min时分别下降了75.5%, 73.4%, 68.2%和74.8%, 同时灌注阻力均有升高, 其他低浓度组无改变; 60 g·L⁻¹ PEG-Hb还引起Na重吸收分数在120 min时降低; PEG-Hb 60, 30 g·L⁻¹组的尿液N-乙酰β-D-氨基葡萄糖苷酶含量升高, 最高可达对照组的4倍, 15 g·L⁻¹组120 min时该酶含量亦明显升高。结论 低浓度PEG-Hb不引起大鼠离体灌注肾的肾功能下降, 高浓度PEG-Hb灌注可使肾功能下降。

关键词 [聚乙二醇修饰牛血红蛋白](#) [离体灌注肾](#) [肾功能](#)

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Renal function at perfusion of polyethylene glycol-modified bovine hemoglobin in isolated rat kidney

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Abstract

AIM To study whether polyethylene glycol-modified bovine hemoglobin(PEG- Hb) is a rational substitute of blood.

METHODS Isolated rat kidney was perfused with 60, 30, 15 and 6 g·L⁻¹ PEG-Hb and renal function was evaluated.

RESULTS Only 60 g·L⁻¹ PEG- Hb-perfused kidneys showed a reduced glomerular filtration rate(GFR), at 30, 60, 90 and 120 min periods, GFR was 75.5%, 73.4%, 68.2%

and 74.8% lesser respectively than that perfused with the control albumin solution. At the same time, renal vascular resistance was significantly higher. Fractional reabsorption of sodium only reduced at 120 min when perfusing with 60 g·L⁻¹

PEG-Hb. Urinary N-acetyl-β-D-glucosaminidase (NAG) activity was significantly increased in 60 and 30 g·L⁻¹

PEG-Hb group at 30, 60, 90 and 120 min, it can be 4- fold as high as control group, and in 15 g·L⁻¹ group at 120 min.

CONCLUSION Low concentration of PEG- Hb has no obvious effect on the renal function, but the high concentration decreases the renal function in the isolated perfused rat kidneys.

Key words [polyethylene glycol modified bovine hemoglobin](#) [isolated perfused kidney](#) [renal function](#)

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