

论著

## PGI<sub>2</sub>对肾缺血再灌损伤兔肠系膜微循环和血液流变性的影响

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**摘要** 目的: 探讨前列腺素I<sub>2</sub> (PGI<sub>2</sub>) 对兔肾缺血再灌注 (IR) 损伤时肠系膜微循环和血液流变性的影响。方法: 采用钳夹肾动脉的方法建立急性肾缺血再灌注损伤模型。日本大耳白兔36只, 随机分为: 假手术对照 (sham) 组、单纯缺血再灌注 (IR) 组和PGI<sub>2</sub>+IR (PGI<sub>2</sub>) 组。运用微循环显微镜自动摄像分析系统, 于肾缺血60 min和再灌注120 min时动态观察肠系膜微循环和测定血液流变学指标。结果: ①缺血期和再灌注期IR组的肠系膜微动、静脉管径减小, 血流速度明显减慢, 白细胞粘附聚集、白微栓及管周出血增多, 全血粘度、血浆粘度、全血还原粘度、红细胞压积、红细胞聚集指数、血沉、血沉方程K值、纤维蛋白原含量增高, 红细胞变形指数降低, 与假手术对照组比较有显著差异 (P<0.01或P<0.05)。②5-40 ng·kg<sup>-1</sup>·min<sup>-1</sup>PGI<sub>2</sub>可不同程度地影响肠系膜微循环和血液流变性, 其中在10 ng·kg<sup>-1</sup>·min<sup>-1</sup>PGI<sub>2</sub>组, 微血管管径和流速、白细胞粘附、白微栓、管周出血及上述各血液流变学指标与IR组比较显著差异 (P<0.01或P<0.05), 与假手术对照组比较微血管管径明显增大 (P<0.01), 而其余指标无显著差异 (P>0.05)。结论: 肾IR损伤时肠系膜微循环和血液流变性异常, PGI<sub>2</sub>对其具有明显的预防作用, 以10 ng·kg<sup>-1</sup>·min<sup>-1</sup>PGI<sub>2</sub>为最佳有效预防剂量。

**关键词** [依前列醇](#); [肾](#); [缺血](#); [再灌注](#); [血液流变学](#); [肠系膜](#); [微循环](#)

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## Effects of prostaglandin I<sub>2</sub> on mesenteric microcirculation and property of hemorheology in rabbits with renal ischemia/reperfusion injury

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### Abstract

<FONT face=Verdana>AIM: To explore the effects of prostaglandin I<sub>2</sub> (PGI<sub>2</sub>) on mesenteric microcirculation and hemorheology during renal ischemia/reperfusion (IR) injury. METHODS: 36 rabbits were randomly distributed into the sham operated group (sham group), renal ischemia/reperfusion injury group (IR group) and PGI<sub>2</sub>+IR group (PGI<sub>2</sub> group). IR group received clamping for 60 min followed by 120 min of reperfusion. A microcirculatory microscope image analysis system was used to study the changes of mesenteric microcirculation and hemorheology at 60 min of ischemia and 120 min of reperfusion, respectively, while the blood samples were obtained for the measurement of hemorheological indexes. RESULTS: ① In IR group during the period of renal IR, the number of adhesive leukocytes and microthrombus, hemorrhage and hemorheological indexes such as blood viscosity, plasma viscosity, blood reduction viscosity, hematocrit, erythrocyte aggregation index, erythrocyte sedimentation rate, erythrocyte sedimentation rate K and plasma fibrinogen were significantly higher, while microvascular diameters, blood flow velocity and erythrocyte deformation index were significantly lower compared with sham group (P<0.01 or P<0.05). ② PGI<sub>2</sub> 5-40 ng·kg<sup>-1</sup>·min<sup>-1</sup> affected the indexes of mesenteric microcirculation and hemorheology to different extent. In 10 ng·kg<sup>-1</sup>·min<sup>-1</sup> PGI<sub>2</sub> group, the diameters

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of arteriole and venule, blood flow velocity, the number of adhesive leukocytes, microthrombus, hemorrhage and hemorheological indexes significantly changed, compared with IR group ( $P<0.01$  or  $P<0.05$ ). Except that microvascular diameters increased remarkably ( $P<0.01$ ), others showed no significant difference compared to sham group ( $P>0.05$ ). CONCLUSIONS: PGI<sub>2</sub> ameliorates the disturbance of mesenteric microcirculation and hemorheology caused by renal IR injury with the best effect at 10 ng·kg<sup>-1</sup>·min<sup>-1</sup>.

**Key words** [Epoprostenol](#) [Kidney Ischemia](#) [Reperfusion](#) [Hemorheology](#) [Mesentery Microcirculation](#)

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