

An experiment study of lung ischemia-reperfusion injury of pulmonary surgery in rabbit model

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摘要

Background and objective The blocking of pulmonary vessels, including the blocking of pulmonary artery and pulmonary circulation, is always applied in the surgical treatment of locally advanced no-small cell lung cancer. However, the blocking of pulmonary vessels will induce lung ischemia-reperfusion injury (LIRI). The aim of this study is to establish pulmonary vessels blocking model in rabbit and to investigate the LIRI in pulmonary surgery. **Methods** 114 New Zealand rabbits were randomly divided into 3 groups: group 1, control group; group 2, block left pulmonary artery; group 3, block left pulmonary artery and vein. After the time of opening chest (group 1), 1 h ischemia and 1 h, 2 h, 4 h, 6 h, 24 h reperfusion, the changes of arterial oxygen partial pressure in left pulmonary vein (PaO₂) and the content of MDA in left lung tissue were observed. Then the water content of left lung and pathological study was recorded. **Results** Hemodynamic parameters were stable in all 3 groups. There were significant differences in PaO₂, MDA and wet/dry ratio of the lung tissue between group 1 and other two groups at the time of 1 h ischemia and 1 h, 2 h, 4 h, 6 h reperfusion ($P < 0.05$ and $P < 0.01$), but there was no significant difference between group 2 and group 3 ($P > 0.05$), and there was no significant difference among the three groups after 24 h reperfusion ($P > 0.05$). Pathological study revealed that similar injury changes happened between group 2 and group 3, and the obvious injury happened at the time of 4 h reperfusion. At the time of 6 h reperfusion pathological changes in both group 2 and group 3 began to recover, and completely recover after 24 h reperfusion. **Conclusion** The lung ischemic-reperfusion injury caused by blocking pulmonary artery is similar to that caused by blocking pulmonary artery and veins. It is safe to previously block pulmonary vessels within 1 h during pulmonary surgery.



关键词

Ischemia-reperfusion injury; Acute lung injury; Pulmonary circulation; Animal experimentation



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