

学位論文の要旨

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主論文の題名			
Molecular biological analysis of cardiac effect of high temperature in rats			
主論文の要旨			
<p>The aim of this study was to investigate direct effects of heat exposure on the heart molecular-biologically and pathohistologically, using rats exposed to high temperatures.</p> <p>The mRNA expression of <i>natriuretic peptide type A (Nppa)</i>, <i>natriuretic peptide type B (Nppb)</i>, <i>actin alpha 1 skeletal muscle (Acta1)</i>, <i>myosin heavy polypeptide 6 cardiac muscle alpha (Myh6)</i> and <i>myosin heavy polypeptide 7 cardiac muscle alpha (Myh7)</i> was determined in the hearts of the rats. Whereas the expression of <i>Nppa</i> and <i>Nppb</i> rapidly increased immediately after the heat exposure, the expression of <i>Acta1</i> was gradually reduced, which indicated cardiac overload. Moreover, the expression of <i>Myh6</i> and <i>Myh7</i> in the heart increased 4 h after the heat exposure, which suggested the involvement of a compensatory mechanism. Immunohistochemical staining with anti-fibronectin antibody showed that positive cardiomyocytes could be detected sparsely 4 h after the heat exposure, and they could be clearly observed 8 h after the heat exposure.</p> <p>Our results showed that hyperthermia causes myocardial damage shortly after the exposure to heat and that the ventricle was more vulnerable to hyperthermia-induced damage than the atrium. Cardiac dysfunction may be induced not only by hypercytokinemia but also by the direct effect of heat exposure at the early period of heat stroke, which may be one of the mechanisms by which heat causes death. Elucidating the mechanism of death from heat stroke could lead to not only diagnostic improvement but also the prevention of death from heat stroke.</p>			

(注) 2, 000字以内にまとめて記入すること。