Perindopril regulates β-agonist-induced cardiac apoptosis

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Administration of the β-adrenergic agonist isoproterenol results in cardiac apoptosis. The effect of short-term β-adrenergic stimulation by isoproterenol on the activity of plasma, lung, and left ventricular (LV) angiotensin I-converting enzyme (ACE) activity and its association with the development of cardiac apoptosis was investigated. β-Adrenergic stimulation for 24 hours produced an early increase only in the proapoptotic proteins bax and bcl-XS without changes in the levels of the antiapoptotic protein bcl-XL. The ratio between these bcl family proteins was indicative of apoptosis and correlated with an early and significant increase (300%) in DNA laddering. However, after 5 days of the β-adrenergic stimulation, the ratio changed in favor of antiapoptotic proteins and correlated with the absence of DNA fragmentation. In addition, LV and plasma ACE activities increased markedly with isoproterenol over the study period up to 5 days. ACE activity also regulated expression of the anti