The caspase-3-cleaved presence was evaluated in this study in the heart of irradiated rats, during the decline of ventricular function. Female Wistar rats were irradiated with a single dose of radiation (15 Gy) delivered directly to the heart and the molecular, histological and physiological evaluations were performed at thirteen months post-irradiation. The expressions of procollagen type I, TGF-ß1 and caspase-3-cleaved were analyzed using Western blotting. Cardiac structural and functional alterations were investigated by echocardiography and electron microscopy. In the irradiated group, the levels of procollagen type I, TGF-ß1 and caspase-3-cleaved are increased. Significant histological changes (degeneration of heart tissue and collagen deposition) and functional (reduced ejection fraction) were observed. Data suggest that the cardiac function decline after exposure to ionizing radiation is related, in part, to increased collagen and increased caspase-3-cleaved.

Keywords
Apoptosis, caspase-3, fibrosis, heart, ionizing radiation, TGF-1.