**EFFECT OF MELATONIN ON THE HEART OF MICE TREATED WITH ISOPROTERENOL**

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Cardiac muscle is characterized by an adverse structural remodeling when damaged, which induces cardiac insufficiency, deregulation of homeostasis and death. However, there are agents that could attenuate these effects, such as melatonin (ME), an indoleamine with potential cardioprotective properties, but that its use has also been associated with cancer. Therefore, the aim of this study is to evaluate the effect of melatonin on the heart of young male mice treated with isoproterenol (ISO) as cardiotoxic agent. One control (SS) and 3 experimental groups (ISO, ME, ME/ISO) were formed. Parameters quantified were ventricular weight/body weight ratio as criteria of ventricular hypertrophy (VH), collagen fibers (CF), cell infiltrates (CI) proportion and nitrotirosine (NT) as criteria of oxidative stress. Changes in body weight were independent of the treatment. VH in ISO-group was 11.83% higher than SS, ME, ISO/ME. CF, CI and NT were not different between SS (0, 0.937±0.18 and 0%) and ME groups (0.63±0.13; 3.688±0.62, 0.38±0.70%). CF, CI and NT increased with ISO, meanwhile in ME/ISO were 79.07, 84.01 and 75.5% lower than in ISO group (p<0.001), but always above control group. These results suggest that melatonin could attenuate heart injury by modifying three important processes involved in cardiac remodeling: fibrosis, inflammation and oxidative stress, which could be enough to promote a better restoration of the homeostasis and the survival of organisms. Studies comparing the action of antioxidant and antiinflamatory agents should provide evidences with regard to its mechanism of action. We thank CONACyT for grant 169736 to CMA.