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Title: Intermittent hypoxia is associated with a high risk of AMI-related ventricular arrhythmias

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Body: Acute myocardial infarction (AMI)-induced ventricular arrhythmias are a common cause of sudden cardiac death. Increased activity of the sympathetic nervous system is well known to predispose to AMI-related ventricular arrhythmias. Obstructive sleep apnea (OSA) causes chronic intermittent hypoxia (IH) that leads to an increase in sympathetic activity along with endothelial dysfunction and myocardial damage. The aim of this study was to investigate whether rats exposed to chronic IH had an increased probability to develop AMI-induced ventricular arrhythmias. Methods and results: 60 male Wistar rats were exposed to IH (60-sec cycles alternating 21 and 5 % FiO2 during 8h/day) or air for 14 days, and then submitted to an in vivo myocardial ischemia protocol by ligature of the left coronary artery. Arterial blood pressure was measured and ECG was recorded throughout the experiment. Mean arterial blood pressure was significantly increased in hypoxic compared to normoxic rats. Rats exposed to IH were also more susceptible to AMI-induced arrhythmias. The most frequent arrhythmia was ischemia-induced ventricular fibrillation, which occurred in 7 out of 27 (25.9%) of normoxic versus 14 out of 24 (56.5%) hypoxic rats ($p<0.05$). Plasma catecholamine concentrations are currently under analysis. Conclusion: IH increases AMI-induced lethal ventricular arrhythmias in rats, probably through sympathoactivation. This study suggests an increased risk of lethal arrhythmias in apneic patients presenting with AMI. Therefore, it could be of great interest to early diagnose OSA patients with high risk of cardiovascular events in order to limit sympathetic activation and ventricular arrhythmias.