Title: Hyperbaric oxygen and scopolamine

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Abstract: Scopolamine (Hyoscine), an anticholinergic compound is widely used for the prophylaxis and treatment of motion sickness and might be used with oxygen diving and hyperbaric oxygen therapy. We therefore decided to test the interaction of scopolamine with oxygen at high pressure. Thirty-six rats implanted with cortical EEG electrodes were injected subcutaneously with two doses of scopolamine (0.02 or 0.2 mg.kg-1), or the vehicle (saline), 30 min before exposure to 5 atm abs (0.5 MPa) oxygen. Electroencephalogram and heart rate were monitored continuously. Spectral analysis of the EEG was carried out, and the duration of the latent period before convulsions was determined. No significant difference was found in the duration of the latent period between the control rats receiving vehicle (saline) and rats injected with scopolamine (n = 12 for each group). Changes in background EEG activity and maximal dilation of the pupil were detected at both scopolamine doses. Heart rate significantly decreased at 0.02 mg.kg-1 and increased at the dose of 0.2 mg.kg-1 scopolamine. Our findings indicate that the duration of the latent period preceding hyperoxic seizures is not altered by scopolamine in rats; however, other side effects of the drug regarding visual and cardiovascular symptoms should be considered when scopolamine is used in combination with hyperbaric oxygen.