A Study of Hyperbaric Oxygenation; In Reference with It's Effect on Hemodynamic Changes in Use of RISA

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In recent years, hyperbaric oxygenation has been disputed to be effective for cardiovascular disease, heart disease and bleeding shock as a new therapy in the anesthesiological field. Since two years, an attempt has been made on the fundamental study of hyperbaric oxygenation by the authors. The primary objective of this paper is to report the influence of hyperbaric oxygenation upon hemodynamic changes of experimental animals which were carried out lately.

The experiment was carried out on two groups; normal control group and acute coronary infarct group. RISA, 100 mc was injected as soon as possible in the external jugular vein, which was exposed beforehand. Total circulatory blood volume, cardiac output, pulmonary circulatory time, appearance time and half time at the ventricles were recorded with a recorder combined with the rate meter before pressurization, in thirty minutes after pressurization at three atmospheric pressure in the chamber and after depressurization.

In both groups, peak to peak, appearance time and half time were prolonged on pressurization at three atmospheric pressure in the chamber. On the other hand, total circulatory blood volume and cardiac output were decreased in their values. These trends were remarkable in the group of acute myocardial infarct. As the results, the occurrence in the burden of the right heart was suggested from the radioangiogram which was taken during pressurization of control group, while, the burden of both ventricles were presumed in the group of acute myocardial infarct.

Therefore, further examination is still required to determine the efficacy of hyperbaric oxygenation on cardiovascular or heart disease.

Elimination Rate of $^{133}$Xe from the Lung and Pulmonary Arteriovenous Shunt Flow

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Both elimination rate from the expired air and pulmonary arteriovenous shunt flow was measured after intravenous injection of $^{133}$Xe and dye in extreme condition of dogs, that is 1) in one lung ventilation, 2) in haemorrhagic shock. Moreover the relationship between two parameters, namely elimination rate of $^{133}$Xe and pulmonary arteriovenous shunt flow was discussed.

Method

Mongreal dogs weighting 9–13 kg were anesthetized by thiopentone and their spontaneous respiration was stopped by muscle relaxants. Pulmonary ventilation was maintained by piston respirator with solenoid valve which facilitated the sampling of expired air.

After intravenous injection of 1 mc of