Cardiac Research Directory

HYPERBARIC OXYGEN IN THE TREATMENT OF THE POSTOPERATIVE LOW-CARDIAC-OUTPUT SYNDROME

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It has been our experience that patients who develop the low-cardiac-output syndrome in association with pulmonary hypertension after cardiac surgery seldom recover despite vigorous treatment. We report here the case of a patient who was successfully treated by means of hyperbaric oxygen therapy. Case-report a 50-yr-old man was admitted to the London Chest Hospital on Oct. 23, 1964. He had a history of productive cough, recurrent haemoptysis, and dyspnoea on exertion for 21 years. He had been discharged from the Army 20 years before with mitral valve disease.

Mr. J.R. Belcher performed the operation on Nov. 3, 1964 after the operation the patient displayed all the signs of a low cardiac output - failure to recover consciousness with no localizing cerebral signs, severe peripheral cyanosis, and a very slow capillary refill in the limbs. Since the patient's condition was now desperate, it was decided to use hyperbaric oxygen therapy. He was placed in the Vickers mobile chamber at a pressure of 2 atmospheres absolute. Since there were no facilities in the chamber for artificial respiration, transfusion or drainage these had to be discontinued.

The patient's condition began to improve after an hour inside the chamber; he was taken out of it every 2 hours to aspirate from his bronchial tree the considerable amount of heavily bloodstained sputum. After 12 hours treatment, he began to move and gradually recovered consciousness for the first time since the operation. Summary and Conclusions In the immediate postoperative period after mitral valvotomy a patient who had shown signs of pulmonary hypertension preoperatively, and a raised pulmonary artery pressure at thoracotomy, displayed all the signs of low cardiac output. In an attempt to lower the pulmonary vascular resistance and raise the cardiac output, he was artificially ventilated with 100% oxygen. This was ineffective, and the patient's death seemed certain. Hyperbaric oxygen treatment was then instituted. Within an hour, his condition began to improve, and, though artificial ventilation, pleural drainage, endotracheal suction, and intravenous therapy were not feasible, he continued to improve while in the chamber. This case suggests that hyperbaric-oxygen therapy helps to support life during the critical period of post-operative low cardiac output in patients with pulmonary hypertension and justifies further trial of the technique in similar cases.

Abstracted from the Lancet March 13th 1965 pages 581-583 (Yacoub is now Prof Sir MH Yacoub). N.B. The patient was treated in an ambulance in the car park of the hospital.

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