CLOSED-CHEST CARDIAC MASSAGE: A CASE REPORT

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CLOSED-CHEST CARDIAC MASSAGE was recently suggested and first applied by W. B. Kouwenhoven *et al.*¹

In trying this method we must try to maintain adequate circulation during cardiac arrest by applying rhythmic pressure on the sternum. Resuscitation in cardiac arrest requires restoration of the heart beat and pulmonary ventilation within a very short time. In certain emergency cases where asepsis is not possible, therefore, this technique is very useful.

The clinical application of closed-chest cardiac massage is illustrated in the following case of cardiac arrest.

HISTORY

Mrs. J.B., a 72-year-old patient, was admitted through the emergency room on February 28, 1961, with multiple injuries. She was in cardiovascular shock with the blood pressure maintained by an intravenous Noradrenaline drip. She had tachypnea at 32 per minute, was pale, and perspiring profusely. There was acute compression of the spinal cord at the level of T5-T6, resulting in paralysis of the lower limbs. The abdomen was distended as a result of paralytic ileus. Her condition was further complicated by haemothorax on the left side at the level of the 9th and 10th ribs. The surgeon decided to do emergency laminectomy and decompression to relieve acute spinal shock.

ANAESTHETIC COURSE

Following oxygenation, induction was accomplished with 200 mg. thiopentone and 40 mg. succinylcholine. After the vocal cords had been sprayed with 4 per cent Cyclaine, a Davol No. 8 tube with cuff was inserted and the cuff was inflated immediately. Nitrous oxide and oxygen (50/50) was used with a total flow of 4 litres per minute to maintain anaesthesia. After this induction, the blood pressure dropped to 40/0 mm. Hg, and it gradually came up with Noradrenaline drip to 8-/40 mm. Hg. Respiration was controlled with an Emerson respirator at a rate of 16 per minute with a positive pressure of 16 cm. H₂O and a negative phase of 4 cm. H₂O. Anaesthesia was maintained with the nitrous oxide, Anectine® drip, and intermittent meperidine to a total dose of 50 mg.

The patient was turned to the jack-knife position without marked change. The blood pressure was maintained throughout the four hours of operation at 80/40 and the pulse at 100. During the operation, she received 1000 c.c. of blood and 500 c.c. of 5 per cent dextrose in water.

During the exploration it was found that she had suffered fractures from T5 to T8, with complete section of the cord at the level of T5-T6. Compression was relieved, and the incision was closed. The blood pressure remained 80/40 and the pulse 100.

At the end of operation the patient was transferred to bed in the supine position, when suddenly respiration ceased and blood pressure fell to 0 without evidence of pulse or heart beat.

Closed-chest cardiac massage was started at a rate of 60/minute and oxygen was administered. After 3 minutes a pulse was obtained and the blood pressure could be recorded. Noradrenaline drip was restarted and the blood pressure was 120/80. The Noradrenaline drip was stopped gradually and the patient maintained pulse and pressure and was of a good colour. Twenty minutes later the colour of the patient was dusky and the pulse was unobtainable. Heart sounds were inaudible and respirations ceased. Closed-chest cardiac massage was reinstituted. After 8 minutes the pulse and pressure were obtainable. Blood pressure was again 120/80 for a period of 40 minutes. At the end of this period the heart stopped again and we restarted closed-chest cardiac massage. On this occasion it was impossible to restart the circulation. This was two hours after the operation had ended.

Postoperative survival for this patient was practically impossible, but we found the method of closed-chest cardiac massage very useful in an emergency situation in the recovery room.

We think this method may have wide application. It is more rapidly and more easily applied than other methods. The advantage of this technique is that thoracotomy is not necessary, and this is especially valuable in the ward and recovery room where aseptic conditions do not exist. Outside the hospital it may be applied in many cases and may be done by every practitioner.

SUMMARY

Closed-chest cardiac massage has been shown to be effective in a case of cardiac arrest in the very-poor-risk patient.

RÉSUMÉ

Cet exposé rapporte deux ressuscitations à une heure d'intervalle chez un très mauvais risque par des messages cardiaques selon la méthode décrite par W. B. Kouwenhoven *et al.*

REFERENCES

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