EXTERNAL CARDIAC COMPRESSION

Sir.—The letter from Dr. Rex Binning (Brit. J. Anaesthet., 1963, 35, 391) gives a welcome opportunity to discuss the use of external cardiac resuscitation by personnel of the Electricity Supply Industry. The dangers of this technique have been pointed out by Baringer et al. (1961) and by Clark (1962). As a result of the paper by Baringer and his colleagues, both the Lancet (1961) and the British Medical Journal (1961) carried leading articles counselling against the use of the method by first-aid personnel until more was known of its dangers. A Symposium on Emergency Resuscitation (1961), at which Great Britain was represented by anaesthetists, revealed divided views and concluded that external cardiac resuscitation should be used only by doctors, nurses and recognized lifesavers. It appears clear from reading the discussion that a distinction was drawn between first-aiders and "recognized lifesavers".

Since that time opinion has remained divided. It is interesting to note that in this country the British Medical Journal, reversing its earlier counsel, has recently (1962) advocated widespread teaching. At the same time, however, in America, where the technique was at first widely hailed, a note of caution is now sounded by the American Heart Association (1962).

What then is the position in the Electricity Supply Industry, which employs some 205,000 people? Thanks to an efficient organization there are in this industry only some six deaths each year from electric shock in England and Wales and from their very nature some of these will occur where there are no first-aiders. This being so, cases of collapse which may be diagnosed as circulatory arrest and treated with external cardiac massage are likely to be very little different in the Electricity Industry from those met with in other industries (e.g. electric shock cases are a small fraction of the total). Until more is known of the hazards of external cardiac resuscitation it has been decided by the medical advisers of the industry not to expose the many to its dangers in order to try to save the few.

We have, sir, been deeply concerned over this. In 1960, soon after the description of this method by Kouwenhoven et al. (1960) a visit was made by one of these advisers to the Johns Hopkins Hospital, together with a medical representative of Electricité de France. More recently the subject has been discussed at a Symposium on Electrical Accidents in Paris (International Labour Organization, 1962) and by the Medical Group of UNIPEDE. Opinion is as divided internationally as it is within this country.

And so the problem remains. Until we have more information on the relative dangers of external cardiac resuscitation its use by first-aiders must remain a matter for debate.

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REFERENCES


THE MISMANAGEMENT OF SUXAMETHONIUM APNOEA

Sir,—Dr. Vickers (Brit. J. Anaesth., 35, 260) has made a valuable contribution in discussing the mismanagement of suxamethonium apnoea, but there are several aspects that require elaboration. I agree that very prolonged apnoea, in a patient who possesses an inherited abnormal pseudocholinesterase, is most probably the result of treatment given during the neuromuscular block.

The important point, which Dr. Vickers rightly stresses, is that a nondepolarizing block, as shown by tetric fade, and post-tetric facilitation following nerve stimulation can, in certain circumstances, be potentiated by anticholinesterase drugs. In my experience, although a myoneural block is primarily depolarizing in type, a small element of non-depolarizing block will readily manifest itself by tetric fade and post-tetric facilitation. Therefore reliance cannot be placed on this test to demonstrate whether the myoneural block is primarily depolarizing or non-depolarizing in type. The interpretation of the responses of muscles to tetric nerve stimulation will vary according to the experience of the observer and I doubt the wisdom of waiting till post-tetric facilitation is markedly present before administering anticholinesterase drugs. I now believe that the only way to prevent unexpected responses to anticholinesterases is not to administer these drugs at any stage of this type of neuromuscular block. As Dr. Vickers rightly states, "adequate patience is the best and least toxic therapeutic agent".

Edrophonium has been accepted as a short-acting anticholinesterase drug and injection of a small dose has been advocated as a diagnostic test. Recent personal observations have made me doubt whether this drug is short-acting and I believe that it is as dangerous as neostigmine in prolonging a "suxamethonium apnoea", if it is given early in the recovery from the neuromuscular block.

Dr. Vickers mentions that fresh blood or plasma may be used to terminate the apnoea. This statement is no doubt based on the report by Harrison, Seward and Skinner (1954), who showed that a prolonged apnoea following suxamethonium could be rapidly reversed by a transfusion of fresh blood. It is not widely appreciated that pseudocholinesterase is a stable enzyme. Fromberg, Mannheimer and Keats (1960) showed that the succinylcholine esterase activity of blood is only reduced to 80 per cent of its original