The organization of prehospital coronary care

Sir:

Dr. Pantridge's editorial, summing up the current status of prehospital coronary care, which appeared in the *British Heart Journal* (1974) 36, 233, is very welcome, and we agree that the case for such a medical care system is now self evident. The concept that the mobile coronary care unit is a major new way to tackle the problem of acute myocardial infarction is one with which we agree, but the problems of organizing such a system have been inadequately publicized. Under the National Health Service once the decision to have such a system has been made, the cost is absorbed within the system and the administration is generally by a consultant cardiologist who organizes nurses and physicians to work in the mobile C.C.U. We have been running a mobile coronary care system in the Metropolitan Philadelphia area for the past three years and have run into some unforeseen problems inherent in the existing health care system. It is thought that a brief discussion of some problems within the American scene and our solutions would be of interest and profit to those who embark on such a project in the future.

In the U.S.A. prehospital coronary care has been organized in the following ways:

- a) The City (fire) rescue system with costs covered by the city authorities (e.g. Seattle).
- b) Volunteer rescue groups in smaller areas.
- c) Interested hospital groups with donations of money and often unpaid professional personnel (e.g. Grace in New York).
- d) A commercial group, e.g. Empire State Ambulance in New York on a fee-for-service basis, in this case using specially trained paramedical personnel.

Our experience was with (c), for the city authorities were not prepared for such a system initially though they became so later (however the city made relatively slow progress because of lack of adequate funds for rapid organization). For us, funds were

provided by a charitable organization (United Fund of Philadelphia) and the cost carefully defined (Binnion, Makous, and Keller: *American Heart Journal* (1972) 83, 723).

Initially, as in the usual British system, a nurse and physician were taken from the staff of the C.C.U., with only a driver being paid. However, the C.C.U. physicians eventually raised questions about the risk of riding in an ambulance, the risk from assault in more hazardous parts of the city (one patient's wife had a revolver when accompanying her husband to hospital), and the possible neglect of sick cardiac patients while the physicians were out on calls which sometimes turned out to be quite unnecessary. It proved difficult to show that patients being provided with the coronary ambulance were at greater potential risk than those within the hospital. There was a general lack of understanding of the size and importance of prehospital coronary care.

Finally, changes in the internal organization of the house staff made the use of physicians on the coronary ambulance impossible, and nurses were unwilling to go out on calls without a physician. The only alternative then available was complete cessation of the service or training special personnel to run the service. A 'paramedical' training programme was instituted with an 80-hour minimum theory course on emergency medicine and approximately 200 hours of classroom and hospital work; a final examination was conducted by state health officials and certificates were awarded to these emergency medical technicians.

To finance the system a charge of \$40.00 is made per call, and at the time the patient is being evaluated these emergency medical technicians can get in touch with an experienced doctor by a long-range radio page system. The doctor can help bypass the emergency room and avoid delays in admission to the C.C.U. (Binnion, Mandal, and Makous, *Journal of the American Medical Association* (1973) 223, 923) and also advise on therapy at the scene, for ventricular fibrillation is not the most common

emergency (Webb, *Lancet* (1974) 1, 559). Chamberlain's group in Brighton, among others, has proved the efficacy of such personnel even without a doctor. Funds provided by routine ambulance work are needed in addition to the emergency fee mentioned above, but with a non-profit organization (where money is put back into equipment and per-

sonnel) we consider this approach ethical and a useful solution to the problem of the treatment of acute myocardial infarction outside the hospital.

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