Out-of-Hospital Cardiac Arrest

To the Editor:

With regard to the interesting editorial by Curos Abadal[1] on the useful, important study of Escorial et al,[2] it seems appropriate to make some comments. It has been 11 years since we published our then-current experience with outpatient cardiopulmonary failure (OCPF) in a large city such as Buenos Aires. We observed that, in 77 patients with OCRF, and given an average of 6 minutes to work with, we could perform cardiopulmonary resuscitation (CPR) in 62.3% of patients. We had to stop CPR measures in 29.9% of patients because of delays, and 7.8% were beyond help. Of the 12 patients (15.6%) who were successfully revived, only 7 were admitted to the cardiac intensive care unit (CICU) and only 4 were discharged. The level of success in the total population was 5.2%, the same as in other studies where success levels were 3.54%, 3.25%, and 6%. As far as the patients who arrived alive at the hospital and were later discharged, the percentage increased to 33%, as found in the study of Escorial et al.

This study clearly demonstrates the prognostic factors for this population and the percentage that can be later be discharged when they arrive alive and are admitted to the CICU, but we do not know how many patients comprised the total number of OCRF patients of the 110 cited, nor how many of these died in the emergency room without being admitted to the CICU. This study shows how few patients are actually discharged in relation to the total number of patients with OCRF.

Given the total population, one can observe that, in spite of the passage of time, there has only been an improvement in these statistics and achievement of positive outcomes when the intervention has been expeditious and been undertaken by paramedics trained in the use of defibrillators.[7] Our proposal at the time was to substitute «continuous information» for «permanent education» in society as a whole.

We proposed a study method which included 4 levels of action with corresponding levels of correction.

Level I (alarm) was the total time it took to activate the professional equipment. The success or failure of any program depends on the amount of time it takes to ensure a positive outcome in outpatient cardiopulmonary resuscitation. The amount of intervening time depends on the OCRF victim, the presence of a bystander, and rapid access to a telephone. The efficacy of the bystander could be notably increased if they were trained in basic CPR techniques; CPR training for the entire population, particularly for public service personnel, would be very useful in this situation. It should be an absolute requirement that such personnel be trained in these techniques as part of their jobs (police, firemen, etc.). Access to an emergency hotline by use of a simple number seems to be already in place with the 112 emergency number.

Level II (assistance) consists of the professional team that answers the call. The competence of members who make up the 061 emergency system is guaranteed. Nevertheless, at this level there must be a clear determination as to who are or will be the permanent training and accreditation entities, and an assurance of periodic recertification. Accreditation and training in basic and advanced CPR must be the responsibility of scientific societies and their foundations that carry out centralized the continuing education activities for the general public. Cardiology has much to offer society in this regard. There must also a broad discussion of the need for paramedic and layperson CPR training as part of a successful and reasonable CPR program. If Spain could finance the mobilization of doctors and nurses, it is obvious that they could be more easily trained and could use their talents to greater benefit in the decision-making process, but it is unknown how much attention is needed to follow this path. There is a lack of obligatory CPR programs in undergraduate and postgraduate medical education.

Level III (institutional) is the admission, in depth diagnosis, therapy, and the discharge of the patient. Are all hospitals in Spain in a state fit to receive a resuscitated patient through the emergency department and provide the same immediate attention that they have been receiving in a mobile coronary unit? Do we know how many patients resuscitated in the street are admitted alive to the coronary or intensive care unit? How many discharged patients have undergone coronary arteriogram?

Level IV (follow-up) of OCRF is a subject requiring further study. There must be multidisciplinary clinics that do not only treat OCRF patients organically. These patients´ reintroduction into society must be of primary importance, and for this social and psychological support is needed. The need for proposed changes and other changes that may arise must be matched by corresponding medical advances. At each action level there is a corresponding possible and necessary level of correction. It would be interesting to consider the future creation of a national OCRF data center that receives and follows-up all reported OCRF cases, and functions as a resource center –something like a center for detoxification– and a national center of information and assistance to concentrate all efforts, and to amplify communication with transplant organizations to locate potential organ donors.

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Response

To the Editor:

We have read with attention the letter signed by Dr. Fernández Bergés, and we agree with his suggestions. We would like to add some comments.

1. In spite of the fact that there is constant improvement, in Spain the training of doctors, medical students, paramedics and the general public to identify and treat a witnessed cardiopulmonary arrest is insufficient; it is neither regulated nor controlled. It could and must be improved.[1,2] This same problem exists in almost all countries.

2. The correct education of the bystander who witnesses cardiopulmonary arrest and the quality and speed of the outpatient emergency systems are not sufficient to improve the patient prognosis.[3] New strategies are needed that are more effective that the current ones. Among these are:

– Identification and adequate treatment of high risk patients, principally through the use of myocardial revascularization, implantable defibrillators and beta-blockers.[4-8]

– Consider all patients with precordial pain as potential immediate victims of sudden death, until the diagnosis of acute myocardial infarct is made.[9] This implies immediate electrocardiographic monitoring of all the patients who come to the emergency room with precordial pain.

– Instruct the public on the danger of sudden death in the setting of certain symptoms (precordial pain) and how to ask for adequate help.[10,11] This strategy includes the recognition of the need to know how seek help before it is needed.

– The availability of semiautomatic defibrillators in public places, together with the education of adequate medical and non-medical personnel.[12] This measure, still controversial, could be converted into one of the most effective strategies in the battle against witnessed sudden death.

Some of the measures may seem extreme, but the present measures are insufficient, which is not to downplay the importance and quality of the efforts made by outpatient emergency systems, which in most cases simply cannot get there in time.

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