

Scientific letters

Knowledge in Basic Life Support and Automated External Defibrillator Among the Local Police of a Geographical Area of Spain



Conocimientos en soporte vital básico y desfibrilador externo semiautomático de los policías locales de una zona geográfica de España

To the Editor,

Out-of-hospital cardiac arrest (CA) is a major public health problem. More than 24 500 CAs are estimated to occur in Spain, equivalent to a CA every 20 minutes and causing 4 times more deaths than traffic accidents.¹ In Europe, CAs are thought to affect 700 000 individuals.² Saving lives does not only depend on high-quality cardiopulmonary resuscitation (CPR) but also on appropriate training for the population. Any event outside normal in Spain activates the emergency services. Depending on the organizational structure of the emergency services in each autonomous region, local police may be the first to arrive on the scene of a CA.

Local police, as the first on the scene, are responsible for carrying out the first 3 steps in the chain of survival: a) early recognition of the medical emergency and activation of the emergency response system; b) early CPR, and c) early defibrillation, according to the recommendations of the European Council for Resuscitation and the American Heart Association.³

The objective of the present study was to analyze the level of training of local police officers for participation in CPR and use of a semiautomatic external defibrillator (SAED). In this descriptive cross-sectional study, local police officers were chosen at random from 2 municipalities covering 70 614 inhabitants and with a headcount of 104 local police officers. A questionnaire,⁴ based on the most recent recommendations of the European Resuscitation Council and the American Heart Association,³ was completed anonymously and voluntarily. The questionnaire had multiple-choice answers to specific questions about CPR and SAED, divided into 5 knowledge sections: a) emergency system; b) initial assessment of cardiopulmonary arrest; c) airways; d) circulation, and e) use of SAED (Figure). Epidemiological data such as age, sex, length of service, and number of CPR courses taken were recorded. The data were analyzed using the statistical package SPSS 20.0 for Windows.

Of the 104 questionnaires initially distributed, 82 were completed. The mean age of those surveyed was 44 ± 7 years

and 89% were men and 11% women. The mean duration of service as local police officers was 18.6 ± 9.3 years and 73.2% had attended at least 1 CPR course while 26.8% had not attended such a course. Of the 60 local police officers who took at least 1 CPR course, the mean number of such courses was 2 ± 1.5 .

The Table shows the overall findings of the survey with regards the specific questions about CPR and SAED. In the specific questionnaire, in the section referring to the emergency system, 42.7% of the local police officers knew what information to provide on activating the emergency system in the face of a medical emergency and that this should be the first action in this situation. In the section about initial CA assessment, 57.3% of the local police officers knew what should be the first action in a CA and knew how to check for consciousness.

In the section about airway knowledge, 53.7% of those surveyed knew what maneuver to perform to clear the airway; knew the utility of look, listen, feel; knew what to do after the first ventilation if the chest is still not moving, knew how to check for breathing; and knew what to do with an unconscious person who is not breathing. In the section about knowledge of circulation, 80.5% knew how to proceed if an SAED was not available if there was a CA, knew what to perform if the individual with a CA has a perioral lesion, and knew how to place their hands to perform the CPR maneuver. In the section on knowledge about SAED, 63.4% knew how to position the pads and use them, knew not to touch the victim during discharge, and knew what to do when the device is switched on.

Our study provides original information because we have found no other Spanish study that has assessed the level of knowledge about CPR and SAED in a group of local police officers. We cannot, therefore, compare our findings with those on other police forces and security forces in Spain. According to the resuscitation guidelines for 2015, it is very important to establish training plans for the essential steps in the chain of survival following CA in out-of-hospital environments.³ One of the limitations of the present study, in addition to its small sample size, is the inherent selection bias of the voluntary nature of the survey. Those individuals with greatest interest in the topic would be more likely to respond. In conclusion, we found that training courses did not improve knowledge of CPR and SAED use. This brings into question the quality of these courses. A continuous and useful training is highly important to improve knowledge of the out-of-hospital management of CA.

Table

Results of the Survey on Specific Questions Referring to Cardiopulmonary Resuscitation and Semiautomatic External Defibrillators

	Correct responses % (n)	Incorrect responses % (n)
Emergency system	42.7 (35)	57.3 (47)
Initial assessment of cardiac arrest	57.3 (47)	42.7 (35)
Airway	53.7 (44)	46.3 (38)
Circulation	80.5 (66)	19.5 (16)
Defibrillator use	63.4 (52)	36.6 (30)

<p><u>Emergency system</u></p> <p>1. What is the number for calling the emergency services in the autonomous region where you live?</p> <p>a) 061 b) 091 c) 112 d) 062</p> <p>2. Which information below is not essential when calling the number for the emergency services in the event of a medical emergency?</p> <p>a) Patient's name. b) Time of onset of the incident, and how and whether it is the first time this has happened. c) Reason for seeking assistance. d) All of the above.</p> <p>3. When is the number for the emergency services available?</p> <p>a) From 8:00 to 20:00. b) From 7:00 to 21:00, except weekends and bank holidays. c) From 9:00 to 21:00 Monday to Friday and from 9:00 to 14:00 Saturdays and Sundays. d) Continuously 24 hours a day, 365 days a year.</p> <p>4. What is the first thing we should do in the event of a medical emergency?</p> <p>a) Secure the perimeter. b) Call the emergency services. c) Place the patient in the recovery position. d) Shout calling for help.</p>	<p><u>Initial assessment of cardiorespiratory arrest</u></p> <p>1. After checking, if the patient is unconscious but breathing, what should we do?</p> <p>a) Kneel down beside the patient and see whether he or she can talk. b) Place the patient in the recovery position. c) Check to see whether the patient's eyes are open. d) Wait for medical assistance to arrive, without touching the victim.</p> <p>2. What is the correct order for the chain of survival?</p> <p>a) Early CPR, early defibrillation, early recognition of cardiac arrest and activation of the emergency response system, postarrest care. b) Early recognition of cardiac arrest and activation of the emergency response system, early CPR, request assistance, postarrest care. c) Early recognition of cardiac arrest and activation of the emergency response system, early CPR, early defibrillation, and postarrest care. d) Postarrest care, early defibrillation, early CPR, activation of the emergency response system.</p> <p>3. After activation of the emergency response system, what should we do when faced with a possible cardiorespiratory arrest?</p> <p>a) Heimlich maneuver. b) Determine the individual's medical history. c) Check and open the airway. d) Venous catheterization.</p> <p>4. To check whether the patient is conscious, we should:</p> <p>a) Shake the shoulders gently. b) Ask a simple question such as whether the individual is OK. c) A and B are correct. d) A and B are incorrect.</p>	<p><u>Airway</u></p> <p>1. What maneuver should we try to perform to clear an obstructed airway in a conscious patient who does not cough?</p> <p>a) CPR. b) Heimlich maneuver. c) Mouth-to-mouth. d) Place the patient in the recovery position.</p> <p>2. The look, listen, feel maneuver is used to:</p> <p>a) Check for circulation. b) Check for breathing. c) Perform chest compressions. d) Check for consciousness.</p> <p>3. What should we do if, during the first ventilation performed in a CPR, the chest does not move?</p> <p>a) Carry on with rescue breathing. b) Try rescue breathing twice more even though we do not achieve the desired result and we block the patient's nose. c) Avoid touching the victim and wait until the emergency services arrive to avoid the risks of rescue breathing. d) Perform the chin-lift maneuver and attempt rescue breathing once more.</p> <p>4. Keeping the airway open, check that the victim is breathing normally. How do we check the breathing?</p> <p>a) Look for chest movements. b) Feel on our cheeks whether the patient is breathing. c) Listen at the mouth of the victim to see whether we hear breathing. d) All are correct.</p> <p>5. If, after our checks, the patient is not only unconscious but also not breathing, what should we do?</p> <p>a) Stop trying and go back to our work station. b) Call the emergency services and start CPR. c) Place the patient in the recovery position. d) Wait for the emergency response team to arrive, without touching the victim.</p>	<p><u>Circulation</u></p> <p>1. If a person is in suspected cardiorespiratory arrest and a defibrillator is not available, while we wait for help, what should we do?</p> <p>a) Heimlich maneuver. b) Basic CPR. c) Endotracheal intubation. d) Place the patient in the recovery position.</p> <p>2. To perform chest compression, how are the hands are placed?</p> <p>a) The heel of the hand on the center of the chest. b) One hand on top of another. c) The fingers are intertwined. d) All are correct.</p> <p>3. When can you stop chest compressions during CPR?</p> <p>a) When a professional takes over, you are exhausted, or the person starts to breathe normally. b) When you think the ambulance is about to arrive and you see people around you. c) A and B are incorrect. d) The patient is elderly.</p>	<p><u>Use of SAED</u></p> <p>1. What is an SAED?</p> <p>a) A device for administering oxygen. b) A device that can deliver a controlled electric charge to the heart to revert ventricular fibrillation and re-establish heart function. c) A technique used for assistance in traffic accidents. d) An instrument to facilitate endotracheal intubation.</p> <p>2. The SAED pads are usually placed on the bare chest of the patient on:</p> <p>a) The abdominal area close to one another. b) The anterior area of the chest. c) The 2 pads on the posterior area of the chest. d) Depends on the state of the patient.</p> <p>3. When at work, a colleague who has just come out the shower falls down. He or she is not breathing so we initiate CPR and ask other colleagues to bring the center's SAED and call 112. Before placing the SAED pads, we should take care to:</p> <p>a) Dry the chest of the person quickly before placing the SAED pads. b) No precautions are necessary; the pads are placed on the wet chest so as not to delay the discharges. c) Remove any rings that the individual is wearing as they may interfere with the SAED. d) All are correct.</p> <p>4. Can anybody touch the patient while the discharge is applied?</p> <p>a) Yes, always. b) No, never. c) Sometimes, for example if the patient is cold. d) Provided we have the necessary protective equipment.</p> <p>5. What should you do when the SAED is switched on?</p> <p>a) You can press any button without problem. b) Listen and follow the voice instructions. c) Press a different colored button every time. d) Ignore the voice instructions and apply the discharge, alternating with chest compressions.</p>
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Figure. Questionnaire on cardiopulmonary resuscitation and use of semiautomatic external defibrillator. CPR, cardiopulmonary resuscitation; SAED, semiautomatic external defibrillator.

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Expectations of Survival Following Cardiopulmonary Resuscitation. Predictions and Wishes of Patients With Heart Disease



Expectativas de supervivencia tras la reanimación cardiopulmonar. Predicciones y deseos de los cardíopatas

To the Editor,

After an in-hospital cardiorespiratory arrest, fewer than 25% of patients survive until hospital discharge, and substantial neurological sequelae are present in around 30% of survivors.¹ Patients' preferences regarding cardiopulmonary resuscitation (CPR) are tied to their perception of the chances of a successful outcome.^{2,3} An excessive optimism in our patients with regard to maneuvers such as CPR in the context of cardiovascular disease may have an impact on their expectations, thereby influencing whether they opt for do not resuscitate orders or advance directives.

Our main objective was to determine the prognosis of cardiology patients after cardiorespiratory arrest and to assess whether this may have an impact on their desire for resuscitation. To this end, we conducted a descriptive study based on a voluntary and anonymous survey (Figure), administered during a private face-to-face interview with a single cardiologist (J. Ruiz-García) in a consecutive series of patients after their visit to the cardiologist in a general hospital.

In total, 130 consecutive cardiology patients were included in the study (Table). No patient refused to participate and only 2 preferred not to answer a question about do not resuscitate orders.

The predicted mean survival at hospital discharge (question 1A) according to the responses of our group of patients was $75.6 \pm 23.0\%$ (median 80%, interquartile range 60%–94%). The predicted mean survival free of substantial neurological deterioration (question 1B) was $64.5 \pm 26.2\%$ (median 70%, interquartile range 50%–86%).

With these expectations, 116 patients (89%) wished to be resuscitated in their current state, 1 would refuse CPR, and 12 (9%) had never considered this question. In the event of a change in their clinical condition and diagnosis with a chronic disease with a life expectancy less than 12 months, this number was significantly reduced (71 patients, 55%; $P < .01$) while the number of patients who would refuse CPR or who had never considered this question increased to 22 (17%; $P < .01$) and 34 (26%; $P < .01$), respectively.

Twenty-eight patients (22%) reported never having seen or been present at a CPR; of those who had, most (86%) had seen it in a film or television series.

Only 1 patient had deposited an advanced directives document or living will. However, 89 (69%) wanted to be the ones who took

the decision about end-of-life care, compared with 28 (22%) and 12 (9%) who wanted the physician or a family member, respectively, to take that decision.

The cardiology patients interviewed have a highly optimistic outlook of the outcomes of CPR in the context of in-hospital cardiorespiratory arrest. It is highly likely that these expectations so far removed from reality have influenced the desire of the majority to be resuscitated in their current clinical conditions, and even in the case of a disease that would significantly shorten their life expectancy.

The professionals who treat cardiology patients should be conscious of this situation and encourage decision-making based on desired, objective, real, and current information. If we do not provide appropriate information, patients may make their decisions based on false expectations and a much more hopeful outlook than is actually the case, thereby detracting from their right to provide an informed consent. Of particular note is that the optimism shown by our cardiology patients, which although common to most patients, exceeds that observed in another analyses. For example, in the study by Jones et al,⁴ the overall survival rate was cited as 65%. More recently, the mean survival at discharge after cardiorespiratory arrest in a healthier and younger

Table

Demographic Characteristics of Patients Included in the Study

	Cardiology patients (n = 130)
Age, y	64.6 ± 15.1
Female sex	58 (45)
Marital status	
Single	10 (8)
Married	81 (62)
Separated	6 (5)
Divorced	9 (7)
Widow/er	19 (15)
Religion	
Nonbeliever	28 (19)
Catholic	94 (72)
Other	8 (6)
Level of education	
No schooling	15 (12)
Primary school	53 (41)
Secondary school	19 (15)
Vocational training	23 (18)
Higher education	17 (13)

Data are expressed as n (%) or mean ± standard deviation.