BRIEF ORIGINAL

Survey of public secondary school teachers' attitudes towards instruction in basic cardiopulmonary resuscitation in schools

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None

Objectives: To study the beliefs and attitudes of public secondary school teachers in Lugo, Spain, regarding the teaching of basic cardiopulmonary resuscitation (CPR) in schools.
Methods: A self-administered questionnaire was sent to 2 public middle schools in Lugo. The questionnaire contained 12 closed-answer items preceded by an explanation of sudden death, early basic CPR, and early defibrillation.
Results: Of 120 questionnaires sent, 56 (46.6%) were completed and returned. Eleven teachers (19.6%) had attended a basic CPR course. Twenty-three (41.1%) were unaware of the availability of semiautomatic external defibrillators. Fifty-two (92.95%) considered it would be good for their students to take a basic CPR course and learn to use a semiautomatic external defibrillator. According to 76.8%, it would be good to provide instruction in basic CPR during the course of obligatory secondary school education; 57.2% thought CPR should be taught in the third year of secondary school or higher. Forty-eight (85.7%) expressed interest in taking a basic CPR course themselves, and 46 (82.1%) believed such a course would best be taught by health care professionals. Twenty-two teachers (39.3%) said they would be willing to teach the subject if they received prior training.
Conclusions: Most teachers consider it useful to include basic CPR in the secondary school curriculum and they are interested in receiving training themselves. Although most prefer that such a course be taught by health care professionals, half of those interested would be willing to serve as instructors after receiving training. [Emergencias 2008;20:251-255]

Key words: Cardiopulmonary resuscitation, basic. Secondary schools. Survey.

Introduction

Early basic cardiopulmonary resuscitation (B-CPR) performed by a bystander in an emergency setting may increase the possibilities of survival of the victims of cardiac arrest two- to three-fold[1]. However, the percentage of B-CPR carried out by a bystander is low: 18% of the cases in Galicia. The greater the number of people trained in CPR manoeuvres the greater the probability of a victim of cardiorespiratory arrest (CRA) receiving B-CPR by a bystander. Since many decades ago, schools have been considered to be ideal places to most effectively extend the knowledge and skills of B-CPR among the population in North America and some European countries[2,3]. Children and adolescents are an easy, inexpensive audience to educate (they learn quickly, are easy to motivate, once skills have been acquired they show them to others). Training in schools is egalitarian, reaches all social levels and periodic review would palliate the memory curve[4]. In the last years, B-CRP teaching programmes have been launched in Madrid (Programa Alertante) and Barcelona (PROCES)[5], Spain, with institutional support and from private enterprises. In Lugo, professionals from 061 and secondary school teachers have initiated a collaboration project with the objective of training 800

secondary and high school students in this technique.

We were interested in knowing whether this initiative is of interest to teachers and to what measure they would become involved. To do this a survey was carried out in the schools in which the project was implemented. Similar surveys undertaken with teachers and heads of studies in different countries have observed very favourable opinions with respect to the teaching of B-CPR in schools and have aided in knowing the attitudes of the teaching professionals[6,7] who seem to be the most appropriate promoters to develop these programmes with an increasingly more discrete collaboration of healthcare personnel.

Methods

A transversal opinion study was carried out through a closed questionnaire. The questions were preceded by a brief explanation on the epidemiology of sudden death in Galicia and on the importance of improving survival with early application of the survival chain on behalf of the witness.

The study population included: 120 teachers from two public high institutions of Obligatory Secondary Education (ESO) where personnel from the 061 service had recently given a course on B-CPR and semi-automatic defibrillation to students from 12 to 16 years of age as part of the training project. The project has two phases. In the first phase 4 Physical Education teachers are trained as instructors of B-CPR (according to the ERC guidelines 2005) creating the Didactic Units (in which objectives, procedures and time distribution are indicated) which are later given (Annex 1). This phase finalised in June 2007. The objective of the second phase of reinforcement is to maintain the knowledge obtained and update this knowledge with the application of the didactic unit in each school course for both teachers and students who have participated in the programme as well as those who incorporate into the centre each year.

The questionnaire consists of 12 questions grouped into 3 categories: previous knowledge of CPR (1 to 4), possibility of teaching B-CPR in the institute (5 to 13) and demographic (14 and 15). All the teachers of each institute received one once through the internal mail of the centre. It was indicated that the questionnaire was anonymous and voluntary.

Results

Of the 120 questionnaires, 56 were completed (46.6%). With respect to previous knowledge of CPR, 11 teachers (19.6%) had, at some time, attended a course of B-CPR, 23 (41.1%) were unaware of the existence of semi-automatic defibrillators (DESA) and 48 (88.9%) were interested in participating in a B-CPR course as students.

With regard to their opinion on the ideal site for diffusion of B-CPR among the population, 14 preferred teaching centres (schools, institutes), 14 teachers chose the work place as the best place to teach CPR and 2 chose cultural centres.

Concerning the personnel most indicated to teach this material, 46 (82.1%) chose healthcare personnel, 3 (5.4%) considered it should be carried out by the teachers and 3 (5.4%) believed that any person would be valid.

Fifty-two (92.9%) teachers considered a course on B-CPR and DESA to be of interest for students in the institute. Forty-three (76.8%) felt that the teaching of B-CPR would be useful in Obligatory Secondary Education (ESO) while 16 (28.6%) thought it should be given in the 3rd and 4th year of ESO, 16 (28.6%) in high school and 7 (12.5%) did not believe that age was important. A total of 22 teachers (39.3%) were willing to teach this material if they were first trained.

Table 1 shows the preferences of the teachers with regard to the subject in which CPR should be taught.

The results on the difficulties in teaching CPR at school are shown in Table 2.

Table 1. Subjects which the teachers considered adequate for including the B-CPR material.

Subject	Nº of responses (%)
Physical education	13 (23.2%)
Biology/Geology	11 (19.6%)
Tutorship	7 (12.5%)
No comment	25 (44.6%)
Total teachers	**56**

B-CPR: basic cardiopulmonary resuscitation.

Table 2. Difficulties encountered by the responding teachers with respect to teaching B-CPR at school

Reason	Nº of teachers (%)
Lack of time	11 (19.6%)
Lack of teacher training	6 (10.7%)
Lack of healthcare personnel to give the course	13 (23.2%)
Lack of material and adequate site	3 (5.4%)
No comment	23 (41.1%)
Total teachers	**56**

B-CPR: basic cardiopulmonary resuscitation.

Table 3. Subjects taught by the responding teachers

Mathematics	8 (4.3%)
Spanish language	4 (7.1%)
Foreign language	9 (16.1%)
Plastic and visual education	1 (1.8%)
Music	1 (1.8%)
Physical education	3 (5.4%)
Physics and Chemistry	1 (1.8%)
Biology and Geology	3 (5.4%)
Others	19 (33.9%)
No comment	7 (6.1%)
Total teachers	**56**

The subjects given by the teachers who completed the questionnaire are depicted in Table 3.

Discussion

Most of the teachers who answered the questionnaire considered that it would be useful to include teaching B-CPR in the curriculum of the students of ESO and were interested in receiving training in this technique. Although most of the teachers preferred the course to be given by healthcare personnel, 40% were willing to do it if first prepared to do so.

With respect to the interest in teaching B-CPR at school, the results of this survey coincide in general with others carried out in Spain such as that in Barcelona and in Anglo-Saxon countries. The new law on Spanish education includes subjects on first aid within the teaching curricula "Physical condition and health" under Physical Education in the 4th of ESO. However, at present, the teaching of B-CPR in schools in Spain is anecdotal and is not in par with the rapid expansion of extrahospital emergency systems and with the recent appearance of the so-called "cardiac columns" with DESA and visible instructions on how to initiate B-CPR manoeuvres in public places (airports, sports centres and shopping malls) including direct telephone contact with the coordinating emergency centre. In this way, an advanced step has been promoted in the chain of survival (the third basic step, DESA), putting aside the first two steps (recognition of cardiorespiratory arrest and performance of B-CPR) which have more than demonstrated their efficacy. The objective of this survey in secondary school teachers was to know their interest and degree of commitment they would have if B-CPR obligatorily appeared in their programmes as part of subject curricula and thereby ensuring at least the knowledge of B-CPR in a high number of citizens.

In addition to confirming the interest of the teachers towards the inclusion of this material in the study plans, what seems even more interesting is the high implication in the project, with 40% of the teachers being willing to teach the subject after previously receiving training.

In previous studies (Barcelona, Washington and New Zealand)[6-8], the surveys were aimed only at heads of study and the nurses of the centres rather than at all the teachers as in the present study. It was interesting to know the opinion of all the teachers of the centres since their opinions and attitudes are probably a determinant towards the successful development of any B-CPR teaching programme in a school.

We were also interested in the opinion of the teachers with regard to the age which they considered appropriate for teaching the material and in which subject it should be included. It was mainly considered that students after the 3rd of ESO (14 years of age) should receive the course and this should be within the subject of Physical Education or Biology. Although B-CPR has been relatively successfully taught to primary school students, it has been shown that at these ages the students are not capable of correct massage (lack of physical strength), although they did learn the technique[9]. It therefore seems logical to wait for an age at which the manoeuvres can be correctly performed, although several studies have reported that students from 7 to 12 years of age are capable of learning and reproducing the manoeuvre and retain theoretical knowledge successfully[10-13].

This study did not include any item related to the time required to complete the training. In the institute in which the project has been initiated, the teachers have designed and applied didactic units over 9, 40-minute sessions in a trimester with a final evaluation and automation sessions of 10-15 minutes every 3-4 weeks during the school year and once every trimester during the successive years.

The main limitation of this study was the selection of the centres which was not random but rather conditioned by the fact that a course of B-CPR and DESA had been given to the students. Distributing the questionnaire immediately after a course of B-CPR and DESA may have influenced the results. Another limitation was the low number of responses which would have, undoubtedly, increased if a reminder call had been made.

In summary, the teachers of two secondary school institutes in Lugo have confirmed that most teachers are in favour of including the teaching of B-CPR in ESO and a high percentage are willing to carry out the task after having re-

ceived previous training. It would be of interest to extend the survey to other institutes which have not received any previous talk or course on CPR to determine the possible presence of whether the study had a certain bias of opinion. If so, a publicity campaign and energetic diffusion within the teacher training centres could be undertaken to sensitise teachers before starting their work.

Annex 1. Summary of the didactic unit received by the students of 3rd and 4th obligatory secondary school (ESO)

OBJECTIVES
Each student should be able to recognise a cardiac arrest and adequately apply the manoeuvres and in other cases follow the pertinent protocols.

CONCEPTS
Know the basic physiology of sudden cardiac arrest (ventricular fibrillation….)
Assimilate and learn in depth the chain of survival (action protocols)
Reflect upon the importance of rapid, adequate action to achieve a higher percentage of survival of victims with cardiac arrest.
Basic knowledge of how DESA works.

PROCEDURES
Carry out tests for level of consciousness

Application of Plan A.
– Move shoulders, Are you alright? Answer (level of consciousness).
– Leave person as they are (except in case of danger).
– Apply first aid.
– Watch and ask for help if necessary.

Application of Plan B.
– Are you alright? No answer: UNCONSCIOUS.
– Shout for help.
– Lie patient down.
– Position for open airway (except for cervical lesions).
– Test breathing.
– See, hear, feel. 10". Breathe.
– Lateral safety position, except for lesion impeding the same.
– Call 061-112.
– Watch. Test that breathing is maintained.

Application of Plan C.
– Steps 1 to 5 of Plan B. DOES NOT BREATHE normally (agonic breathing).
– Call 061-112.
– Perform 30 compressions. Rhythm of 100/min.
– Open airway and breathe in twice. If not effective, look into mouth and again place in correct position prior to next attempt to ventilate.
– Continue sequence 30:2.
– If you cannot or do not wish to ventilate, compress following 100/min.
– Do not stop until help arrives, evident signs of recovery or until exhaustion.
– Practice adequate biomechanical positions to carry out the different manoeuvres effectively.

ATTITUDES
Evaluate the chain of survival as a model of solidarity with others.
Be willing to act with any victim, feeling that your actions are effective (perceived self-efficacy).
Participate in the sessions with commitment.

METHODOLOGY
Fundamentally basic instruction, in the assignment of tasks with feedback the additive evaluation
was used (was also a learning situation).

EVALUATION
The evaluation is continuous, formative and additive.

Formative:
– Class diary:
  • Degree of attention and observation maintained.
  • Work attitude demonstrated.
  • Cooperation and collaboration maintained.

Additive:
– Evaluation sheet of the different planes in which the students carry out reciprocal evaluation.

Grade of accomplishment of the didactic unit.
Fundamentally the students fulfilled the foreseen objectives, although the students of 3rd and 4th with curricular diversification had more difficulties with the conceptual content, giving more importance to the procedural content.

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Encuesta a profesores de Institutos de Secundaria sobre la enseñanza de la reanimación cardiopulmonar básica en sus centros

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Objetivos: Conocer las opiniones y actitudes de profesores de Institutos de Secundaria de Lugo sobre la enseñanza de la reanimación cardiopulmonar básica (RCP-B) en sus centros.
Método: Un cuestionario autoadministrado se hace llegar a 2 institutos de Enseñanza Media de Lugo; consta de 12 preguntas de respuesta cerrada, precedidas de una explicación sobre la muerte súbita, la RCP-B precoz y la desfibrilación precoz.
Resultados: De 120 cuestionarios, se cumplimentan 56 (46,6%). De ellos, 11 profesores (19,6%) han asistido alguna vez a un curso de RCP-B. Veintitrés (41,1%) desconocen la existencia de los desfibriladores semiautomáticos (DESA). A 52 (92,95%) les parece interesante que sus alumnos hagan un curso de RCP-B y DESA en el Instituto. El 76,8% opina que la enseñanza de la RCP-B sería útil en la Educación Secundaria Obligatoria (ESO); el 57,2% piensan que debería impartirse a partir de 3ºESO. Cuarenta y ocho (85,7%) están interesados en participar en un curso de RCP-B como alumnos. En cuanto al personal idóneo para impartir la RCP-B en los institutos, 46 (82,1%) prefieren que sea personal sanitario. Veintidós profesores (39,3%) están dispuestos a impartir esta materia si se les forma primero.
Conclusiones: A la mayoría de los profesores les parece útil incluir la enseñanza de la RCP-B en el currículo de los alumnos de la ESO, y ellos mismos están interesados en recibir esta formación. Aunque la mayor parte prefiere que se imparta por personal sanitario, la mitad de ellos estarían dispuestos a hacerlo si se les entrenase primero. [Emergencias 2008;20:251-255]

Palabras clave: RCP-B. Instituto. Enseñanza. Encuesta.