Abstracts of Poster Presentations

P001

THE SENSITIVITY AND SPECIFICITY OF AUTOMATIC EXTERNAL DEFIBRILLATOR USE BY AMBULANCE TECHNICIANS.

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During the Heartstart Scotland project all 407 ambulances in Scotland were equipped with Leardal Heartstart 2000 or 3000 automatic external defibrillators (AEDs). All cases of chest pain or collapse aged over 16 years were monitored. A shockable rhythm was defined by the algorithm as an organised rhythm of >=180 bpm (ventricular tachycardia) or a disorganised rhythm of >=100 bpm and amplitude >0.1mV (ventricular fibrillation). Rhythm strips were recorded for later analysis in a solid state memory module following an analysis request and at intervals during monitoring. If an arrhythmia requiring defibrillation was detected by the AED the crew followed a strict protocol to confirm an arrest prior to defibrillation.

We compared a group of 200 randomly selected shocked arrests with 200 non shocked arrests to determine the ability of the AED and ambulance crews to detect a shockable rhythm and initiate defibrillation. The combined groups contained 4154 rhythm strips of which 562 were true positives, 12 false positives, 120 false negatives and 3460 true negatives. In the non shock group 77 rhythm samples in 20 patients appeared to fulfil the criteria of a treatable rhythm. In the defibrillated group there were 43 such false negatives in 28 patients.

The overall sensitivity of the system (AED + crew) was 82% and specificity was 99.7%. In 66 cases the AED did not detect a rhythm which appeared to fulfil the criteria for ventricular fibrillation on the printout producing a sensitivity of 89% for the AED. Many of these cases may have been artefact rather than ventricular fibrillation but were included as shockable rhythms as the baseline variation exceeded 0.1mV.

In conclusion early management of potentially lethal arrhythmias by ambulance technicians using AEDs is practical with acceptable sensitivity and specificity.

Automatic external defibrillators, Out of hospital cardiac arrest.

P002

SPONTANEOUS MYOCARDIAL REPERFUSION AS ONE OF THE POSSIBLE MECHANISMS OF CARDIAC ARREST IN ACUTE MUOCARDIAL INFARCTION

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Two important circumstances which we observed in our studies of intracoronary thrombolytic therapy(ICTT) in acute myocardial infarction(AMI) have had us to think about the possible role of spontaneous myocardial reperfusion in the pathogenesis of cardiac arrest:1)Frequent occurence of reperfusion arrhytmia (including ventricular fibrillation(VF)) associated with successful ICTT.In our series of 84 pts with successful ICTT, 64(78.07%)had arrhythmia, of which 5(6.09%) had VF. 2)Possibility of spontaneous myocardial reperfusion(without using thrombolytic preparations) within the first few days of AMI.In 9(37.5%) out of the infarct related artery (IRA) during the first few days of AMI.
Thus,we conclude that in some patients with AMI(especially those with transmural AMI,where total occlusion of the IRA is more likely) cardiac arrest,occuring during the first few days of AMI,might be due to spontaneous recanalisation of the occluded IRA).

spontaneous reperfusion,ventricular fibrillation,AMI

P003

BASIC CARDIOPULMONARY RESUSCITATION. CAN IT BE INCLUDED IN THE SCHOOL CURRICULUM?

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The level of expertise in basic life support in the community remains low. In order to address this problem, basic CPR is to be introduced into the school curriculum. This papers surveys the level of CPR taught in secondary schools at present and the feasibility of adding CPR to the school curriculum. Head teachers of 70 secondary schools in the Lothian region were questionnaired and 51 replies were received. Twenty five schools taught first aid. In 14 schools instruction was by teachers, in 10 by voluntary first aid organisations (Red Cross etc.) and in 4 by the school nurse. Twenty four schools taught basic life support, in 15 schools instruction was by teachers, in 8 by voluntary organisations and in 4 by a school nurse. Teaching is, at present, both curricular (biology, social education and PE) and extra-curricular (CCF and Duke of Edinburgh Award predominantly). When asked at what age basic life support could be taught, answers ranged from between 8 and 16 years (average 12.4). Estimations of the age at which they could be taught were between 7 and 15 (average 11.3). Thirty eight schools said they could provide adequate curricular time and 28 said they could provide adequate staffing to teach a course. Eighteen schools owned a resuscitation dummy whilst another 10 had access to a dummy. Eighteen schools had regular contacts with voluntary first aid organisations. When asked if they envisaged any problems, 43 problems were mentioned. Eighteen concerned staff training and 14 curricular time. Lesser problems were the access of equipment, hygiene, physical ability of the children, fear of children being too young to cope, fear of distressing children and fear that they might practice on each other. The introduction of basic CPR into the school's curriculum poses problems in the amount of curricular time available, in the number of adequately trained staff and in the provision of equipment.

Cardiopulmonary resuscitation, school children

P004

A TWO HOUR TRAINING IN DEFIBRILLATION FOR FIRST-AIDERS

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INTRODUCTION: The use of Automated External Defibrillators (AED's) could increase the number of defibrillator operators. The American Heart Association recommend a four hour training programme in AED use. The aim of this study was to investigate whether volunteer first-aiders could be taught to defibrillate by means of a two hour training programme

METHOD:- St John Ambulance volunteers in London were trained to use an AED. Equal proportions of first aiders (comprising lay people and professional nurses) were randomly allocated to either a two hour, or four hour training programme. Performance was assessed immediately following training, and at three and six months afterwards. Skills were assessed using an objective based assessment. A pass grade was achieved if the candidate demonstrated verification of cardiac arrest, attached the AED to the patient correctly, initiated ECG rhythm analysis, and delivered a defibrillatory shock safely, according to the protocol taught.

RESULTS:- Eighty two of the 106 people who were trained (77%) also attended at three and six months. There were no statistically significant differences in proportion of nurses and lay people, age, or performance of two and four hour course candidates who attended at each session ($P > 0.05$, Chi-square). Forty four people (54% of those who attended at every session) achieved a pass grade at all three sessions. Twenty (51%) of two hour course candidates passed at all three sessions, compared with 24 (56%) of four hour candidates.

COMMENT:- These results suggest that very brief training in AED use is feasible for inexperienced rescuers. Reducing the length, and consequently the cost of initial training in AED use is a potential way of increasing the pool of people with the ability to defibrillate.

heart arrest, electric countershock, education, Automated defibrillation, lay rescuers