cervical spine injuries. One patient suffering carotid artery injury was taken to the OR under CPR, but finally succumbed. There were two (11.8%) survivors suffering closed head injury and traumatic asphyxia respectively and presented in field with VF the first and SR the second one. Full neurological recovery after ICU stay was achieved in both patients. In all cases of ROSC–temporary or definitive, resuscitation lasted <15min. Death was the result of exsanguination in 4 (23.5%), severe head injury in 5 (29.4%), spinal injury in 1 (5.9%), and multiple organ system injuries in 5 (29.4%) patients.

Conclusion(s): Resuscitation in prehospital TCPA should be focused on patients with EMS-witnessed arrest or presented at the scene with organized ECG activity. Termination of resuscitation attempts should be considered after 15min of unsuccessful CPR.

13AP2-4

Cardio-Pulmonary Resuscitation (CPR) with Extra-Corporeal Membranous Oxygenation (ECMO) for refractory out-of-hospital cardiac arrest: An observational and pilot study

M. Le Guen, A. Nicolas-Robin, D. Barouk, P. Leprince, O. Langeron

Anesthesiology and Critical Care Medicine, Pitié-Salpêtrière Hospital – APHP, University Pierre et Marie Curie, Paris, France

Background and Goal of Study: Successful resuscitation with a good neurological outcome following out-hospital Cardiac Arrest (CA) remains very low [1]. Extra-Corporeal Membranous Oxygenation (ECMO) arouses enthusiasm in cases of drug poisoning or intra-hospital CA. [2-3] The aim of the present study was the assessment of early outcome (day 8) and of technical feasibility for out-of-hospital CA with setting of an ECMO during Cardio-Pulmonary Resuscitation (CPR).

Materials and Methods: Every patient (>15 years old) with a witnessed out-of-hospital CA and with an early specialized resuscitation (<15 minutes) were included in this prospective monocentric study. If CPR alone failed with an asystole rhythm, patients were quickly transported at hospital, where a femoro-femoral ECMO was set by a cardio-thoracic team during continuous external compression. Every delay from the fall to the ECMO start was collected (mean ± SD) and a comparison between survivors and non survivors was scheduled. A p value <0.05 was considered as significant.

Results and Discussion: 16 patients were included with 12 functional ECMO (75%) in these extreme conditions but no one survived beyond 3 days. The mean delay before RCP was 6 ± 6 minutes with 5 early asystole rhythm and 11 cases of ventricular fibrillation evolving in an asystole rhythm after defibrillation. The delay before ECLS start was only 125 ± 29 min. Severe lactic acidosis was present before ECMO and persisted after. Deaths were the consequence of multi-organ failure (7 cases), brain death (4 cases) and refractory haemorrhagic shock (1 cases).

Conclusion(s): This dramatic poor outcome was unexpected according to current literature and should lead to a major reflection about precise criteria to collect before initiation of this "extra-ordinary" technique.

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13AP2-5

FIO_2 and oxygen conservation during simulated cardiopulmonary resuscitation depending on the kind of resuscitation bag and oxygen flow

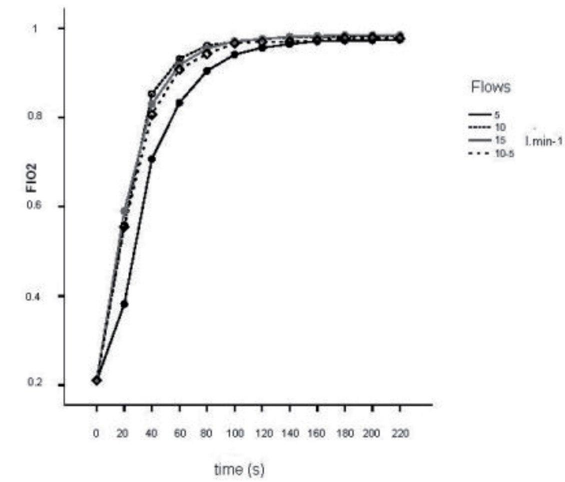
J. Ariño, J. Velasco, B. Herranz, B. Carrillo, F. López-Timoneda

Anesthesia, Hospital Clínico San Carlos, Madrid, Spain

Background and Goal of Study: Emergency cases for resuscitation include built-in oxygen cylinders with limited oxygen supply. The use of autoinflated resuscitation bags (ARB) with reservoir require a high constant flow of oxygen. The aim of the study was to analyze what FIO_2 can be reached and how long it takes using different ARB with their reservoir device and different oxygen flows in order to allow a reduction in oxygen requirements during simulated cardiopulmonary resuscitation (CPR).

Materials and Methods: Experimental analysis during simulated CPR on the effect of two different models of ARB with their reservoir device (Mark IV, Ambu S.L. Madrid. Spain and Revivator Plus, Hersill S.L., Madrid, Spain) and four different oxygen flows 5 l · min^{-1},10 l · min^{-1}, 15 l · min^{-1} and 10 l · min^{-1} during one minute followed by 5 l · min^{-1} (10^{-5}), in the final FIO_2 and the time spent to reach it. The inlet oxygen flow was administered using a flowmeter. Oxygen flows were administered until FIO_2 stabilized (220 s). An O_2 paramagnetic analyzer (Datex Ohmeda Anesthesia monitor, GE Healthcare, Madrid, Spain) to measure every 20 s the outlet FIO_2 and a lung simulator (VBM test lung, O-TWO Medical Technologies. Ontario. Canada) were used. The ratio of compressions to ventilations was 30:2. A constant tidal volume of 600 ml was administrated during the CPR. Data are expresed as mean (SD). Statistical analysis was performed using a statistical software program SPSS 15.0 for windows (SPSS Inc.). A *P* value < 0.05 was considered statistically significant.

Results and Discussion: With both ARB studied: a.- The FIO_2 reached with 10,15 and 10^{-5} l · min^{-1} were similar (p = 0.101) and higher than 0.90 (0.902 (0.07)) in 60 s. b.- With 5 l · min^{-1} higher FIO_2 were reached later (p ⟨⟨ 0.001) and were higher than 0.90 (0.905 (0.005)) in 80 s. c.- A $FIO_2 \geq 0.98$ was reached with all the oxygen flows during the study.



Conclusion(s): To allow a substantial reduction in oxygen requirements a 10 l · min^{-1} during 1 min. followed by 5 l · min^{-1} oxygen flow can be used during CPR with both ARB studied. Increasing supplemental oxygen flow did not appreciably increase the FIO_2.

13AP2-6

Public access defibrillators: Time to access the public

F. van Dehn, P. Schober, J. Bierens, S. Loer, L. Schwarte

Department of Anaesthesiology, VU University Medical Center, Amsterdam, Netherlands

Background and Goal of Study: Sudden cardiac death is most frequently due to ventricular fibrillation (VF). Since the chance for successful termination of VF by electrical defibrillation rapidly declines over time, automatic external defibrillators (AED) have widely been made available to the public in highly frequented places such as railway stations or airports [1]. This approach is intended to allow virtually every coincidental bystander to use an AED and thus to minimize the delay between heart arrest and defibrillation. However, successful use requires a variety of premises to be met, e.g. that the potential rescuer knows what an AED looks like, what it is used for and would be willing to use it in an emergency situation. Therefore, we aimed to investigate knowledge and attitudes of potential public rescuers.

Materials and Methods: At Amsterdam central railway station, a total of 513 persons from 33 nations (40 ± 19 years, 298 male, 215 female) were interviewed using a standardized questionnaire in a zone of 3 meters around an AED. While interviewers pointed at one of the AEDs positioned at the wall (Powerheart G3, Cardiac Science, Bothell, WA, USA; eye-catching yellow colour in green container, labeld "AED") they asked the responded to identify the device and to explain what an AED is used for. Moreover, the potential rescuers were asked whether they would actually be willing to use it in an emergency situation.

Results and Discussion: 239 out of 513 (= 47%) interviewed persons where able to identify the device as an AED or defibrillator. 273 persons (= 53%) could explain the purpose of an AED and 219 persons (= 43%) would actually be willing to use it. Only 142 out of 513 persons (= 28%) meet all of these premises which are all necessary to successfully use an AED in an emergency situation.

Conclusion(s): Only a minority of potential rescuers coincidentally coming along an AED at a major international railway station have sufficient knowledge and willingness to use this device in emergency situations. Broader public information campaigns and training may be necessary to improve the success of public access defibrillator programs.

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