Identification of patients surviving out-of-hospital cardiac arrest who might benefit from early percutaneous coronary intervention

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Purpose: Patients presenting with out of hospital cardiac arrest (OHCA) and no evidence of extra-cardiac cause have a poor short term outcome. This study sought to identify which post-cardiac arrest patients may or may not benefit from emergency coronary angiography (ECA) and primary percutaneous coronary intervention (PCI).

Methods: Observational study in consecutive patients treated for OHCA from 2006 to 2012. Retrospective analysis of clinical, electrocardiographic, and angiographic factors associated with usefulness of PCI and in-hospital survival.

Results: Between 2006 and 2012, 121 consecutive pts surviving OHCA with no evidence of extra-cardiac cause were admitted in our centre and underwent ECA (median age 61 years, 85% males). Mild hypothermia was used in 105 (87%) of the pts. Survival at hospital discharge was 41%. Pre-hospital defibrillation with AED was used in 92 (76%) of pts, and was associated with a decrease in hospital mortality (49% vs 90%; p<0.0001). In the group of pts who received at least one AED shock, survival rates considerably varied according to the first rhythm registered on 12-lead ECG: 74% (35/47) in case of Sinus Rhythm or Atrial Fibrillation, 43% (12/28) in case of persistent Ventricular Tachycardia or Fibrillation, and 0% (0/17) in case of secondary asystole (p<0.0001) (Figure). In 64% of cases, a diagnostic was done in the ED. Serious outcomes occurred in 25 pts. The sensitivity and specificity of SYNCSCOR for the primary criteria was 96% (95% Confidence interval [CI] 80 to 99%) and 24% (95% CI 16 to 36%) whereas 88% (95% CI 70 to 96%) and 18% (95% CI 7% to 24%) for the ED clinician alone. The negative predictive value of the tool was 94% (95% CI 73 to 99%). According to SYNCSCOR, 50% of pts should benefit from an intensive evaluation and 20% can have a direct release.

Conclusion: SYNCSCOR is a useful screening tool to improve reliability of the recommendations in the ED. It can help to limit no necessary complementary exams, overprescribed for patients at low risk, and to lead patients to an immediate intensive evaluation (syncope unit) in case of high risk criteria. As SYNCSCOR is only based on clinical parameters, this tool can be easily proposed in the community care.

Abstract 0066 – Figure: Resume of SYNCSCOR parameters

- Previous History: cardiopathy or familial sudden cardiac death +2 pts
- Circumstances: exercise, supine, palpitations, chest pain +2 pts
- Abnormal clinical exam +1 pt
- Abnormal EKG: ESC criteria + 2 other conduction disturbance or Q wave + 1 +2 or -1 pts

0: discharge
1: differed evaluation ≥2: intensive immediate evaluation

0050

Impella 2.5 in acute myocardial infarction complicated by cardiogenic shock: experience from Bordeaux

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Background: Cardiogenic shock, mainly due to an acute coronary syndrome (ACS), is still subject to a high mortality despite early coronary revascularization. Nowadays, transient percutaneous left ventricular assist device, like Impella 2.5 (Abiomed®), would improve the hemodynamic situation and the survival.

Abstract 0067 – Figure: Resume of SYNCSCOR parameters
Methods: In our institution, all the patients treated with Impella 2.5 as first line therapy for a cardiogenic shock consecutive to ACS were retrospectively included. The mortality at day 30, the hemodynamic efficacy and complications have been analyzed.

Results: From July 2008 to December 2012, 22 patients (13 men, 58±11 years) with cardiogenic shock (LV Ejection Fraction 26±8%; SOFA 9.2±4; cardiac index (CI) 2.1±0.4L/min/m²) were included (12 cardiac arrest, 59% STEMI). The Impella 2.5 device provided effective hemodynamic support (CI increased by 16%, lung and capillary pressures respectively reduced by 36% and 28%). Survival at day 30 was 59%, and it has been maintained up to 6 months. Factors associated with mortality were incomplete revascularization (p<0.01), age >70 years (p=0.07), a SOFA score ≥9 (p =0.02) and blood lactate >6.3 mmol/L (p=0.07) at implantation.

Conclusion: This encouraging results in our single-center experience should be confirmed by a randomized controlled trial.

0222

Public access defibrillators location strategy in major urban areas using geographic optimization, is there an optimal number?

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Purpose: In major cities, optimal distribution of automatic external defibrillators (AED) has long been debated. International guidelines recommended placing AED where at least an out-of-hospital cardiac arrest (OHCA) occurs every 2 years. However, bystander awareness of AED location is often limited. The aim of the study was to determine a potential strategic AED placement policy.

Methods: We included all OHCA managed in Paris by Emergency Medical Services between 2000 and 2010. First, we worked on different scenarios of regular AED placement according to several deployment distances (from 200 meters to 2000 meters), then we analyzed median distance between these AED potential placements and OHCA. Second, we identified different types of public facilities in Paris and we calculated the median distance according to each type of public facilities. We evaluated the number needed of AED in each case.

Results: Among the 4176 OHCA of presumed cardiac etiology, 1415 (34%) occurred out-of-home and 1355 were eventually geocoded (Figure). Median distances between OHCA and district councils (n=20), subway stations (n=302), bike sharing stations (n=957) and pharmacies (n=1466) were 1052, 324, 239, 137 and 142 meters respectively.

Conclusion: Increasing number of AED following a regular distribution on the territory decreases drastically the median distance between AED potential placement and OHCA until a certain number (350 AED for Paris). Additional AED placement benefit becomes less apparent. AED public facilities coverage strategy may help to optimize AED placement. The choice of the best public facility should be based on its number and repartition on the territory and its proximity to OHCA.

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0036

Management of acute pericarditis in the emergency room. A real-life study in a tertiary care center in France

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Background: Few data on the management of acute pericarditis (AP) in emergency departments (ED) are available. We sought to describe the characteristics and outcomes of patients diagnosed for acute pericarditis (AP) in our ED in a tertiary care university hospital.

Median distance between Out of Hospital Cardiac Arrest (OHCA) and Automated External Defibrillator (AED) according to different placement scenarios