Impact of Percutaneous Coronary Angioplasty and Extra-Corporal Life Support on Survival of Patients with Out of Hospital Cardiac Arrest.

Morgan Benais, Michel Zeitouni, Paul Guedenay, Lee Nguyen, Nicolas Brechot, Charles-Edouard Luyt, Olivier Barthelemy, Guillaume Hekimian, Rémi Choussat, Mathieu Schmidt, Marie Hauque-Moreau, Gerard Helft, Claude Le Feuvre, Jean-Philippe Collet, Gilles Montalescot, Alain Combes and Johanne Silvain. *johanne.silvain@aphp.fr  www.action-coeur.org Sorbonne Université Paris 6 (UPMC), ACTION Study Group, INSERM UMR-1166, département de cardiologie and département de réanimation médicale, Pitié-Salpêtrière Hospital (APHP), Paris, France

Abstract
Background Myocardial infarction is the main cause of out-of-hospital cardiac arrest (OHCA). While systematic coronary angiography for a potential percutaneous coronary intervention (PCI) associated to Extra-corposal life support (ECLS) is the standard of care in OHCA, the benefit on survival remains debated.

Purpose Our study evaluated the impact of successful PCI and ECLS use on the survival of patients admitted for OHCA.

Methods In this observational study, we included the patients admitted for an OHCA without obvious extra cardiac cause who underwent a systematic coronary angiography. The impact of successful PCI and use of ECLS after resuscitation were evaluated on in-hospital survival and one-year survival without severe brain injury (cerebral performance category 1-2).

Results Of the 321 patients included, 197 (62%) had one or more significant acute coronary lesions whom 93.5% were successfully treated by PCI . ECLS was used in 21% of patients with severe cardiogenic shock (25%) or refractory cardiac arrest (75%). In-hospital survival rate was 35.5% and one-year survival rate without severe brain injury was 29%. At one year, patients with a PCI failure despite of a serious coronary lesion had a poor prognosis compared to patients who underwent a successful PCI (9% vs 40%, HR = 4.9, 95% CI (1.7-14), p <0.005). Patients with successful PCI and those without coronary lesions had similar survival rate (29% vs 33%, HR = 1.2 p =0.9). Patients treated by by ECLS had a similar survival that patients who did not require any (23% vs 38%, HR=1.42, p=0.15).

Conclusion In our study, successful PCI was associated with a similar prognosis than patients without coronary artery disease, whereas PCI failure was associated with a very poor prognosis. ECLS, using has a rescue support for cardiogenic shock was associated with a similar prognosis than patients without needs of it.