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Core 4. Heart Rhythm Disorders and Resuscitation Science

Session Title: New Approaches to Cardiac Arrest Resuscitation

Abstract 18132: Multicenter Non-Randomized Prospective Cohort Study of Extracorporeal Cardiopulmonary Resuscitation for Out-of Hospital Cardiac Arrest: Study of Advanced Life Support for Ventricular Fibrillation with Extracorporeal Circulation in Japan (SAVE-J)

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Background: This study is aimed to examine the efficacy of

extracorporeal cardiopulmonary resuscitation (ECPR) for patients in out-of hospital cardiac arrest (OHCA) with ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT).

Method: The design of this study is a multicenter non-randomized prospective cohort study. Hypothesis is that the outcome of OHCA with VF or pulseless VT is similar between ECPR and conventional advanced life support (ALS). During from Oct. 2008 to Dec. 2010, forty six tertiary emergency hospitals were participated in this study. Patient inclusion criteria were 1) VF or pulseless VT on scene, 2) cardiac arrest on arrival at hospital, 3) within 45 minutes from a call to an arrival of hospital, and 4) non-ROSC by conventional ALS during 15 minutes after an arrival at hospital. Exclusion criteria were 1) age: 75 yr, 2) poor activities of daily livings, 3) non-cardiac verified cardiac arrest, and 4) hypothermia. According to the inclusion criteria, ECPR was adopted for OHCA in 26 hospitals (ECPR group) and conventional ALS was planned in 20 hospitals (non-ECPR group). Both groups (Intention-to-treat) were analyzed about the proportion of patients with favorable outcome (CPC1 or 2) assessed with the Glasgow-Pittsburgh Cerebral Performance and Overall Performance Categories at 1 month by chi square test and Fisher exact probability test.

Results: One hundred and eighty patients of ECPR group and 134 patients of non-ECPR group were enrolled. There was no difference between the background of ECPR group and non-ECPR group; Average age (56.0 VS 56.9), Witnessed (72.8% VS 75.4%), Lay-rescuer CPR (49.4% VS 45.5%), Acute coronary syndrome (65.6% VS 61.4%), Minutes from collapse to emergency department (26.8 VS 30.0). The favorable outcome rate in ECPR group (12.4%, 22 patients) was statistically higher than the rate in non-ECPR group (1.6%, two patients) ($p < 0.001$).

Conclusion: Extracorporeal cardiopulmonary resuscitation may improve the outcome of out-of hospital cardiac arrest with VF or pulseless VT without ROSC by conventional ALS during 15 minutes after an arrival at hospital.

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