REGIONAL CEREBRAL OXYGEN SATURATION: A NOVEL INDEX FOR PROMPT CLINICAL OUTCOME PREDICTION BEFORE STARTING EXTRACORPOREAL CARDIOPULMONARY RESUSCITATION IN OUT OF HOSPITAL CARDIAC ARREST PATIENTS

ACC Oral Contributions
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Background: To maintain brain function, there is no time to consider whether or not we should perform extracorporeal cardiopulmonary resuscitation (ECPR) in patients after out of hospital cardiac arrest (OHCA) patients. However, huge economical burden with enormous medical costs requires an agile prognosticative index to make a prompt decision of treatment strategies for OHCA patients. Recently regional cerebral oxygen saturation (rSO2) equal or less than 15% (no cortical oxygen value; N-value) has been shown to predict poor outcome in OHCA.

Methods: We performed ECPR in 27 consecutive OHCA patients (mean age: 64±16, male: 21 patients). rSO2 was measured using a near-infrared spectroscopy device (INVOS, Somanetics, USA) placed over the skin of bilateral forehead within 3 minutes of their hospital arrival and before starting ECPR.

Results: Of 27 eligible patients, 13 (48%) survived to discharge, with good performance/ moderate disability in 9 (33%), vegetative state in 4 (15%), and 14 (52%) died. The average of rSO2 was 42 ±22% and the patients with good neurological outcome had higher rSO2 (58±12% vs. 34±12%, p=0.015). Despite best available therapy with ECPR, none of the N-value patients (n=6) survived to hospital discharge. On the other hands, of the other patients (n=21), 9 (43%) survived to discharge with good performance/ moderate disability (figure).

Conclusion: rSO2 monitoring appears feasible and N-value may be of considerable help to make decisions to cease futile ECPR in OHCA patients.

Figure: Rate of Each Neurological Outcomes at Discharge

□ Good / moderate □ Vegetable □ Death

100% 43% 19% 38%

rSO2≤15% (n=6) rSO2>15% (n=21)

We have defined “rSO2≤15%” as no cortical oxygen value (N-value).