

Category 1 :**Emergency - resuscitation**

Category 2 :**Postanoxic brain damage - cerebral resuscitation**

A652 - Start value of cerebral saturation in pre-hospital cardiac arrest patients: does it mean something?

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Introduction:

During cardiopulmonary resuscitation (CPR) monitoring possibilities are limited. Parnia et al. investigated the feasibility and role of near infra-red spectroscopy (NIRS) during CPR in cardiac arrest patients (CA)(1). NIRS could have a role in predicting return of spontaneous circulation (ROSC). Recently, the Equanox® with four wavelengths sensor was validated to provide absolute data on regional cerebral saturation(2). We measured cerebral oxygenation (rSO₂) during CPR with NIRS technology and analyzed the differences between initial cerebral saturations in patients achieving ROSC compared to patients without ROSC.

Methods:

With IRB approval, rSO₂ was measured with NIRS during resuscitation in 18 out-of hospital CA patients. The Equanox® advance (NONIN), a NIRS monitoring device which measure absolute rSO₂ values, was applied on the right side of the patient's forehead when the medical emergency team arrived in a resuscitation setting. Placement of the probe did not interfere with the advanced life support algorithm. The sensor remained on the patient's forehead during resuscitation and if ROSC was reached, the probe was removed on arrival at the emergency department. If ROSC was not achieved, the probe was removed pre-hospital. ROSC was defined as return of spontaneous circulation during more than 20 minutes. Mann-Whitney test was utilized for comparison of survivor and non-survivors data. Student t-test was performed to compare the initial rSO₂.

Results:

Of the 18 patients, 9 patients had ROSC (survivors). The initial rhythm was the same in both groups, 6 patients in each group had asystole as initial rhythm. In the group of survivors were 6 female patients, in the non-survivors 2 female patients. The mean age in ROSC and no-ROSC group is respectively 75,8yr (SD±12,8) and 69,4yr (SD±22,9, p=0,48). The mean rSO₂ at arrival of the emergency medical team was 31,56 % (SD±29,4) and 12,78% (SD±12,7) respectively in the ROSC group and no-ROSC group (p=0,1). Mean time between collapse and start CPR (basic life support of bystanders) was 6,9 minutes (SD±8,2) in the no-ROSC group and 8,2 minutes (SD±7,08, p=0,69) in the ROSC group.

Conclusions:

Initial rSO₂ values in out-of hospital CA patients with ROSC, showed a tendency towards higher values compared with non-survivors, but no significant difference could be demonstrated, probably related to the small number of patients included in this preliminary report.

References:

1. Parnia et al. Resuscitation 2012;83:982– 985
2. MacLeod et al. J Cardiothorac Vasc Anesth 2012;26(6):1007-14