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Impact of pre-hospital vital parameters on the neurological outcome of out-of-hospital cardiac arrest: results from the French National Cardiac Arrest Registry

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Abstract

Introduction

The targets for vital parameters following return of spontaneous circulation (ROSC) from an out-of-hospital cardiac arrest (OHCA) are based on studies carried out predominantly in intensive care units. Therefore, we studied the pre-hospital phase.

Method

We included all adult OHCA from the French OHCA Registry. Vital parameters [peripheral oxygen saturation level (SpO₂), end-tidal carbon dioxide (ETCO₂) and systolic blood pressure (SBP)] documented during the pre-hospital phase by mobile medical team, were evaluated with regard to the neurological outcome on day 30 (classified as good for Cerebral Performance Category (CPC) 1–2, and poor for CPC 3–5 or death).

Results

When compared with a reference range of 94–98%, SpO₂ values less than 94% were associated with a worse outcome on univariate analysis [relative risk (RR)=1.108(1.069–1.147)]. An SpO₂ of 99–100% did not appear to be harmful [RR=0.9851(0.956–1.015)]. ETCO₂ values that deviated from the reference of 30–40 mmHg were associated with a worse outcome on univariate analysis [<20, RR=1.191(1.143–1.229); 20–29, RR=1.092(1.061–1.123); 41–50, RR=1.075(1.039–1.110); >50, RR=1.136(1.085–1.179)]. When compared with a reference range of 100–130, higher or lower values of SBP were associated with a worse outcome on

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