Abstract: **P6383**

**Cardiac output during targeted temperature management and renal function after out-of-hospital cardiac arrest**

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**Topic(s):**
Acute Cardiac Care – Cardiac Arrest

**Citation:**

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**Background:** After resuscitation from out-of-hospital cardiac arrest (OHCA), renal injury and hemodynamic instability are common. Low blood pressure during targeted temperature management (TTM) is associated with acute renal injury (AKI). The aim of this study is to test the hypothesis, that low cardiac output during TTM is associated with acute kidney injury after OHCA.

**Methods:** Single-center substudy of 171 patients included in the prospective, randomized TTM-trial. Hemodynamic evaluation was performed with serial measurements by pulmonary artery catheter. Mean arterial pressure =65 mmHg and central venous pressure of 10 to 15 mmHg were hemodynamic treatment goals. Acute kidney injury (AKI) was the primary endpoint and was defined according to the KDIGO-criteria. Differences between groups were tested by repeated measurements mixed models.

**Measurements and Main Results:** Of 152 patients with available hemodynamic data, 49 (32%) had AKI and 21 (14%) had AKI with need for renal replacement therapy (RRT) in the first three days. At admission, cardiac index was higher in the AKI-group (mean (confidence interval): 2.6 (2.2 – 3.0) L/min/m² versus 2.2 (2.0 – 2.3) L/min/m², p=0.003). During 24 hours of targeted temperature management, patients with AKI had increased heart rate (11 beats/min, pgroup<0.0001) and increased lactate (1 mmol/L, pgroup<0.0001) compared to patients without AKI. However, there was no overall difference in cardiac index (pgroup = 0.25) (Figure). In multivariate models, adjusting for potential confounders including targeted temperature, mean arterial pressure (odds ratio: 0.69 (0.50-0.96) per 5 mmHg increase, p=0.03), heart rate (1.04 (1.01-1.08) per beat/min increase, p=0.01) and lactate (1.59 (1.14-2.2) per mmol/L increase, p=0.006) were independently associated with AKI, but cardiac index remained unrelated with AKI.

**Conclusions:** Blood pressure, heart rate and lactate, but not cardiac output, during 24 hours of targeted temperature management were associated with renal injury in comatose OHCA-patients.
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