Introduction:
Our aim was to determine the incidence and severity of hemodynamic complications during therapeutic hypothermia and analyze whether these complications can be predicted from data available on admission.

Methods:
This is a substudy of the TTH-48 study, where cardiac arrest (CA) patients were randomized to receive therapeutic hypothermia treatment for either 24 or 48 h [1]. Hypotension within four days from admission was recorded and defined as mild, moderate, severe or circulatory failure. Arrhythmias were recorded and classified as mild, moderate or severe. We calculated the incidence and distribution of severity of the events. We used multivariate logistic regression analysis to test association of admission data with any hypotension or any arrhythmia.

Results:
Of all patients, 55.1% had hypotension which was mild in 58.2%, moderate in 27.3%, severe in 7.7% cases. 6.7% had circulatory failure. An arrhythmia was present in 44% of patients. Of these, 45.1% were mild, 29% moderate and 25.8% severe. Bradycardia (N=3), new CA (N=1) and circulatory shock (N=1) were hemodynamic reasons for preterm rewarming. In multivariate analysis age (p=0.005, OR 1.033) and admission MAP (p=0.005, OR 1.020) were significantly associated with hypotensive complications. Only use of mechanical compressions was significantly associated with risk for arrhythmia (p=0.007, OR 0.380).

Conclusion:
Hypotension and arrhythmias were frequent in cardiac arrest patients during days 1-4 from admission, but mostly mild or moderate in severity. Age and admission MAP were associated with hypotension. Only the use of mechanical compressions was independently (negatively) associated with arrhythmias.

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