Comparison of time within target range and complications related to temperature management between esophageal temperature management device and surface cooling

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PURPOSE OF THE STUDY: Targeted temperature management (TTM) is a routine part of treatment for survivors of cardiac arrest. Optimal technique for TTM is unknown. The purpose of our study is to compare TTM between esophageal temperature management device (ETM, ensoETM, Attune Medical, Chicago, IL, USA) and surface cooling (SC).

MATERIALS AND METHODS: We retrospectively included adult patients with non-traumatic out-of-hospital cardiac arrest who were treated with TTM in 2015 and 2016. We analysed the proportion of time within target temperature range in the first 48 h, the incidence of esophagogastroduodenoscopy and requirement for blood transfusion in the first 7 days, and incidence and time of onset of pressure sores.

RESULTS: We included 84 patients, 58 (69%) males, age 62 ± 16 years. Thirty-nine (46.4%) survived to hospital discharge. 28 (33.3%) patients were treated with ETM, and 56 (66.7%) with SC. Patients in the ETM group were within target temperature range $84 \pm 9\%$ of time, compared to $79 \pm 8\%$ in SC group ($p = 0.01$). Esophagogastroduodenoscopy was performed in 3 (10.7%) patients in the ETM group and 8 (14.3%) in SC group ($p = 0.74$). No findings relating to ETM were discovered. Four (14.3%) patients in the ETM group and 9 (16.1%, $p = 1.00$) in the SC group received blood transfusion. Pressure sores developed in 4 (14.3%) patients in the ETM group; in 1 patient on day 3, 1 on day 4, and 2 on day 6, and 13 (23.2%, $p = 0.4$) patients in the SC group; in 1 patient on day 2, 4 patients on day 3, 5 patients on day 4, 1 patient on day 5, and 2 patients on day 7.

CONCLUSIONS: Use of ETM was associated with better temperature control compared to SC, similar incidence of upper gastrointestinal tract-related complications, and a trend toward lower incidence and later onset of pressure sores.