

## The association between early use of targeted temperature management and neurological outcome after cardiac arrest: a national registry research

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**Introduction:** Targeted temperature management (TTM) was shown to have favorable outcome in patients with cardiac arrest. However, there were still limited publications about the impact of the time intervals from return of spontaneous circulation (ROSC) to the initiation of TTM in patients after cardiac arrest. The aim of this study is to investigate the association between the time intervals from ROSC to the initiation of TTM and the favorable neurological outcomes.

**Methods:** The data used the Taiwan Network of Targeted Temperature Management for Cardiac arrest (TIMECARD) registry database. Patients with cardiac arrest received TTM were collected from June 2018 to June 2019. Very early, early, late, very late, and delayed TTM groups were defined as the time from cardiac arrest to initiation of TTM 0 to 5 hours, 5 to 8 hours, 8 to 11 hours, 11 to 14 hours, and >14 hours respectively. A total

of 559 patients were divided into 5 groups: very early group (N=82), early (N=150), late (N=118), very late (N=71) and delayed group (N=138).

**Results:** The baseline characteristics were not different among 5 groups. Favorable neurological outcomes (cerebral performance category 1 and 2) in the very early, early, late, very late and delayed groups were 66.67%, 33.33%, 50%, 25%, and 14.29% respectively. The Cox analysis showed very late and delayed group had worse neurologic outcome (HR=1.829, 95% CI=1.04- 3.23, p=0.0371). There is also a trend to have worse neurologic outcome in late group (HR=1.734, 95% CI=0.91- 3.30, p=0.0939).

**Conclusion:** This national registry study demonstrated that early initiation of TTM in patients with cardiac arrest was associated with improved favorable neurological outcomes compared with those with late initiation of TTM.