FACTORS INFLUENCING INITIATION OF THERAPEUTIC HYPOTHERMIA AND ACHIEVING TARGET TEMPERATURE IN NEONATAL ENCEPHALOPATHY

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Delay in initiating therapeutic hypothermia (TH) for neonatal encephalopathy (NE) reduces neuroprotection in experimental studies.[1] We aimed to investigate the factors influencing initiation of TH and achieving target rectal temperature (TT_{rec}) in NE infants cooled between 2008 and 2010 at Southmead Hospital, Bristol.

Methods: Eligibility criteria from TOBY trial [2] were used to cool NE infants. Data collected on our cohort of 49 babies included weight, sex, gestation, year & place of birth, cardiac compressions, intubation at birth, APGAR scores, cord pH & base deficit, age of initiating TH and reaching TT_{rec}. Age of initiating TH was classified as early (< 1h) or late (>1h). Time required to reach TT_{rec} was calculated as difference between age of initiating TH and reaching TT_{rec}. Logistic regression and multiple linear regression (SPSS v15) were used.

Results: The cohort's baseline characteristics were mean (SD) weight (3252g (770)), gestation (39.7 weeks (1.79)) and female (41%). Early initiation of TH was associated with cardiac compressions (60% vs 22%, p=0.02), year of birth (2008 (23%), 2009 (29%), 2010 (47%)) and 10min APGAR score (median (IQR) 5(3,6) vs 6(5,7), p=0.05). Cardiac compressions (OR 4.7, 95% CI (1.24, 17.9)) independently predicted early initiation of TH. Each 100g increase in birth weight significantly increased the time required to reach TT_{rec} by 7, 95% CI (2, 13) minutes.

Conclusion: Cardiac compressions may increase clinicians' awareness of the need for TH and heavier babies require longer periods of cooling to reach target temperature.

1. Karlsson Pediatric research 2008.
2. Azzopardi NEJM 2009.