

**One Year Follow-up in Patients after Cardiac Arrest Treated with Therapeutic Hypothermia:
A Single Center, Prospective Cohort Study with Historical Control**

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Background:

Patients who regain spontaneous circulation after cardiac arrest, suffer from cerebral reperfusion injury, clinically characterized as 'post cardiac arrest syndrome', which frequently leads to severe neurologic impairment and increased mortality.

Aim:

We studied whether treatment with mild systemic hypothermia is beneficial in reducing mortality rates and in improving neurological outcome, after a week, and then within one year follow-up.

Methods:

Prospectively included were all patients who had been resuscitated after witnessed cardiac arrest due to ventricular fibrillation and stabilized after restoration of spontaneous circulation and comatose state persisted, treated with therapeutic hypothermia (TH) protocol. This group was compared to an historical control group, who met the same criteria for treatment with TH, before this therapy was available. The neurological outcome was determined by the cerebral-performance category from the patients' clinical assessment and records, after periods of 7 days, 30 days, six months and one year.

Results:

Between May 2008 to December 2011 154 patients were enrolled in the TH group and between April 2005 to May 2008, 38 met the historical control group criteria. At 7 days, in spite of significant neurological improvement, there was only a trend towards reduced mortality rates among the TH group, compared with historical control. (14.8% versus 28.9%). No benefit in mortality was observed after one year of follow-up. (p=0.4731).

Conclusion:

TH is effective in improving neurological outcome in patients who regain spontaneous circulation after cardiac arrest. Yet, after one year from TH treatment, there appears to be no benefit in survival rates compared to a historical control.