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## Hypothermia for intracranial hypertension after Traumatic Brain Injury: A randomized clinical study

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**Background:** Most patients with heavy traumatic brain injury (TBI) are nursed in ICUs. Clinical trials indicate significant mortality and morbidity in cases with sustained increases in intracranial pressure (ICP). A current way of controlling intracranial pressure in ICU is therapeutic hypothermia. The benefit of hypothermia on functional outcome is unclear.

**Methods:** 26 patients were randomly enrolled in the experimental group and 26 patients in the control group. Patients in the experimental group (n=26) were subjected to therapeutic hypothermia and monitored by 24 hour-recording of temperature and intracranial pressure. In control group (n=26), 24 hours recording of body temperature and intracranial pressure was also performed but without the use of therapeutic hypothermia. Patient recording ranged from 1 to 6 days.

**Results:** There were 1638 hourly measurements of intracranial pressure in the control patient group. ICP exceeded  $\geq 15$  mmHg in 1192 of these hourly measurements while in remaining 446 values ranged from 8-14 mmHg. In experimental group, 2,208 hourly ICP measurements were performed. ICP values exceeded  $\geq 15$  mmHg in 685 and ranged from 5-14 mmHg in 1523 hourly measurements. The effect of therapeutic hypothermia was found significant ( $F=14.34$ ,  $p=0.000$ ).

**Conclusions:** Our investigation showed that therapeutic hypothermia can be used as an additional form of treatment of intracranial hypertension although the benefit in secondary injuries when patient intracranial pressure was  $\geq 20$  mmHg remains unclear. In particular, in patients with ICP $>20$  mmHg after TBI, therapeutic hypothermia does not improve results than the traditional form of care.

### Biography

A Androulis is a qualified Neurosurgeon operating as Complex Spine Fellow at the 2nd Neurosurgical department of Attikon University Hospital and Director of Neurosurgery at IASO General Private Hospital. He is currently pursuing his PhD at National and Kapodistrian University of Athens, Greece. His research work focuses on issues of cerebrospinal surgery and *in vitro* models for studying neurodegenerative and immunosuppressive neuropathies.

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