Therapeutic hypothermia in stroke patients with use of craniocerebral hypothermia helmet: functional outcome and mortality.

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Background and Aims.

Craniocerebral hypothermia helmet (CCH) is a non invasive method of hypothermia with preferential the brain cooling. Purpose of the work is to submit functional outcome and mortality in acute stroke patients treated with application of CCH.

Method.

We have 2 groups of acute stroke patients: CCH with standard management, and control group standard management without CCH. Inclusion criteria was acute ischemic stroke 72-hours onset. Exclusion criteria was bradycardia.

First group with applications craniocerebral hypothermia helmet consisted of 87 acute stroke patients (mean age $69,7 \pm 12,9$, NIHSS $15,4 \pm 7,1$ points) were treated CCH and standard protocol. Second group consisted of 20 acute stroke patients (mean age $77,2 \pm 6,2$, NIHSS $12,8 \pm 5,7$ points) were treated standard protocol, without CCH.

We used CCH for therapeutic hypothermia induction during 24 hours. We calculated Neurological status (NIHSS) before treatment, after 24 hours and after 7 days, modified Rankin Scale points in 14 day and mortality in 21 day after stroke onset.

Results.

Hypothermia group: NIHSS after 24 hours was $10,6 \pm 7,9$, after 7days was $8,1 \pm 8,2$. mRS $2,59 \pm 1,92$ points. In control group: NIHSS after 24 hours was $12,9 \pm 5,9$, after 7days was $12,5 \pm 6,8$. mRS $4,25 \pm 1,62$ points. There was a statistic significant difference of better NIHSS after 7 days ($p=0,028$), better functional outcome mRS in 14days ($p=0,0005$) in hypothermia group. Mortality rate 9,1% in hypothermia group, in control group 25%.

Conclusion.

We revealed the tendency for better regress of neurological deficit and functional outcome at the patients with CCH. Also, it reduces the rate of disability of patients. CCH could further improve functional outcome and reduce mortality.

Mortality

Group	Total patients	Survived patients after 14 days	Patients died after 14 days	Mortality (%)
Hypothermia	87	79	8	9,1
Control	20	15	5	25

Functional outcome (m RS)