PROTOCOL „CERESAH“ – english version (short)

STUDY TITLE:

Cerebrolysin as add-on therapy in patients with high Hunt-Hess grade subarachnoidal hemorrhage – single center, observational, longitudinal case-control study

INVESTIGATORS:

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CLINICAL DEPARTEMENT INVOLVED IN RESEARCH

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RATIONALE&BACKGROUND

Subarachnoidal haemorrhage (SAH) is a devastating disease with complex and not well known pathophysiology and disputable subacute and chronic treatment. Its mortality and morbidity is still high, being up to 30% and 50% respectively. Intraventricular hemorrhage has a direct negative influence to outcome of SAH and external ventricular drainage, as an emergency procedure, leads to further possible complications. Delayed neurological ischemic deficit (DIND), another serious complication of SAH, contributes to bad outcome in at least half of the affected patients. One of the historical explanation of DIND development is vasospasm, although recent investigations emphasize the role of neurovascular complex and distal microthrombosis as well. Those mechanisms contribute to diffuse hypoxia and blood-brain barrier disruption as well as diffuse edema. Cerebrolysin, as known and proven neuroprotective agens that mimics the action of neurotrophic factors and inhibits free radical formation, seemed an interesting add-on therapy for patients with high Hunt-Hess grade SAH Furthermore, combination therapy of intraventricular thrombolysis when needed, and neuroprotective therapy with intravenous Cerebrolysine in such patients seemed promising.

STUDY GOALS

To investigate efficacy and safety of Cerebrolysine in functional outcome of patients with aneurysmatic subarachnoidal haemorrhage and initial higher Hunt-Hess grade (3 or higher) with or without need of external ventricular drainage and intraventricular thrombolysis.

STUDY DESIGN

Inslusion criteria:

Patients with aneurysmal SAH and initially high grade SAH (≥ 3) with endovasculary secured aneurysm

Signed informed consent

No known contraindications for Cerebrolysine as add on therapy

Exclusion criteria:

Allery to the drug

Another unsecured intracranial aneurysm

Another life-threathening condition which could lead to premature fatal outcome

Patients will be treated and monitored in concordance to routine and standard practice, and intravenous Cerebrolysin (30 ml per day i.v.) for 8-12 days will be added to standard therapy. All aneurysms should be treated in the acute phase(first 24 hours after symptoms onset), by endovascular coiling. Further treatment should be according to standard procedure (nimodipine 5-10 ml/60 min/24 hours for 14 days, MAP kept preferably about 60 mmHg, analgesia, sedation if appropriate, correction of electrolytes and laboratory findings, gastroprotection and deep vein thrombosis protection with LMWH after aneurysmal closure). If indicated, EVD can be placed and intraventricular thrombolysis performed. Patient are routinely monitored by TCD and neuroimaging, as well as routine laboratory testing.

Follow up visits include routine exam after 30 and 90 days, following usual procedure.

Control neuroimaging is routinely done after 90 days of SAH.

STATISTICAL ANALYSIS

According to our statistician.

EXPECTED OUTCOME

According to our hypothesis, Cerebrolysine as add-on drug improves the 90-days functional outcome measured by mRS in patients with aneurysmal SAH and initialy high Hunt Hess score (grade III and higher).

DURATION OF THE PROJECT

3 years, of after enrollment of 50 patients.

ETHICS

Ethics approval obtained (14. June 2021., ref: 8.1.-21/142-1

INFORMED CONSENT FORMS

Available in croatian language. Part of the source documentation.