



STROKE



TBI



DEMENTIA

Cerebrolysin® reduces hemorrhagic transformation after recanalization

- Cerebrolysin® reduces hemorrhagic transformations
- Cerebrolysin® reduces consequences of reperfusion syndrome
- Cerebrolysin® enhances safety for recanalization
- Reduction of mortality

Cerebrolysin®

Reconnecting Neurons.
Empowering for Life.

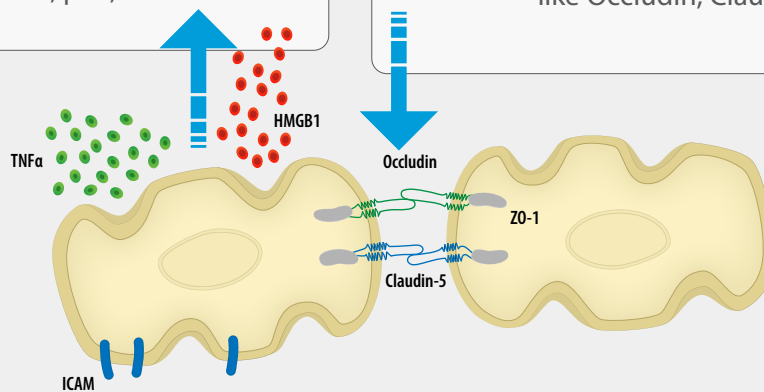
Complications after stroke treatment

GOLDEN STANDARD = RECANALISATION THERAPY
rtPA or thromectomy

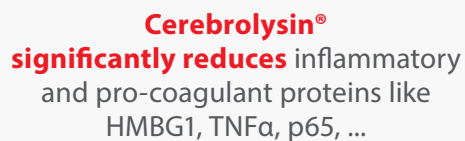
BUT it leads to hemorrhagic complications
BUT 60% of patients does not show expected clinical results

tPA or fibrin
significantly increases **inflammatory**
and pro-coagulant proteins
like HMGB1, TNF α , p65, ...

tPA or fibrin significantly
reduces tight function proteins
like Occludin, Claudin-5, ZO-1



Cerebrolysin®



Cerebrolysin®

HMGB1

TNF α

ICAM

Occludin

Z0-1

Claudin-5

Cerebrolysin®
significantly increases

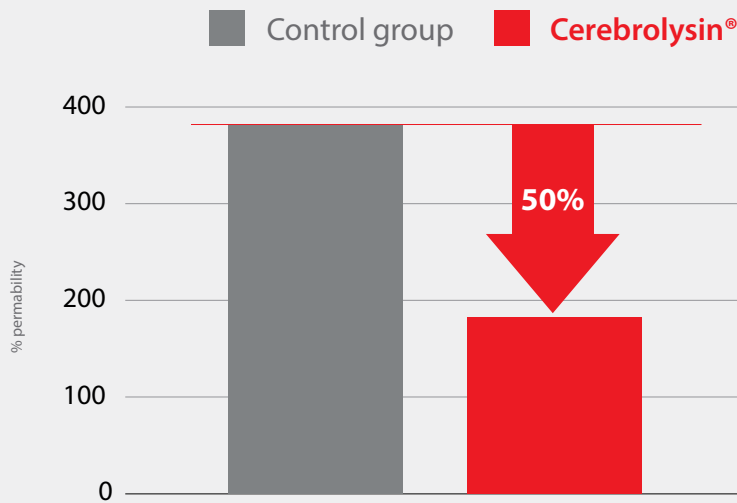
BBB tight junction proteins like Occludin, Claudin-5, ZO-1

Cerebrolysin®

Preclinical study

From the laboratory...

Significantly reduction of rtPA augmented permeability
by more than 50%

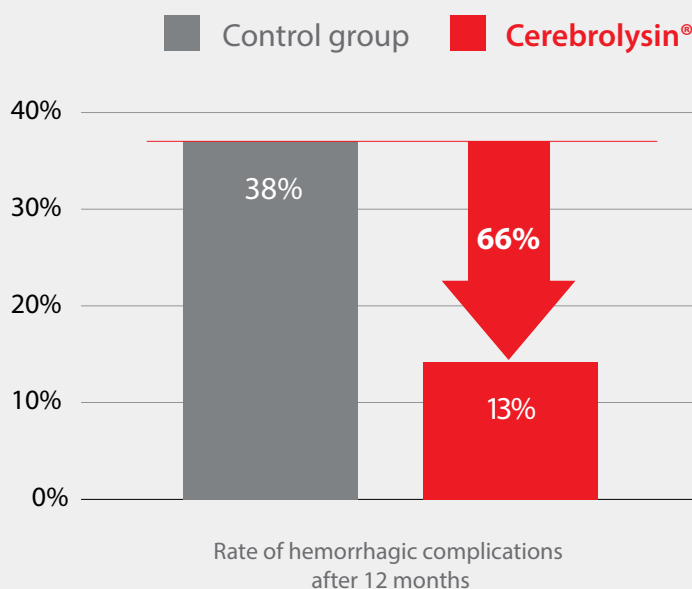


The effect of Cerebrolysin® combined with tissue plasminogen activator (tPA)
on endothelial monolayer permeability, #P<0.001 vs. tPA

- Significant effects with Cerebrolysin®
- Cerebrolysin® **decreases inflammation** and **increases tight junctions**
- Cerebrolysin® **improves BBB integrity**

Clinical study ...into the clinic

Cerebrolysin® reduces risk of hemorrhagic complication
by 66% after 12 months

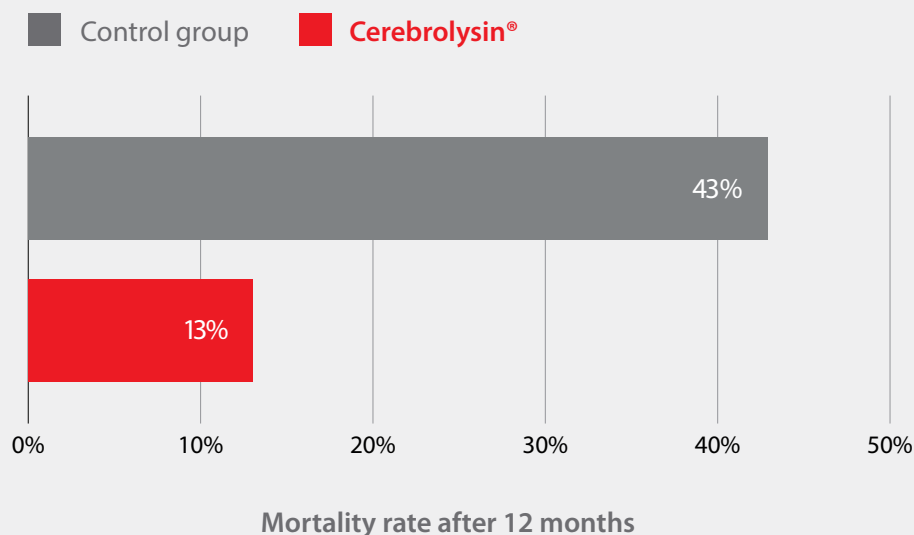


- **Significantly lower rate** hemorrhagic transformation with Cerebrolysin®
- **Only 13%** with hemorrhagic complications in Cerebrolysin® group vs. 38% in control group
- Cerebrolysin® **reduces risk** of hemorrhagic transformation **by -66%**

Patient benefits

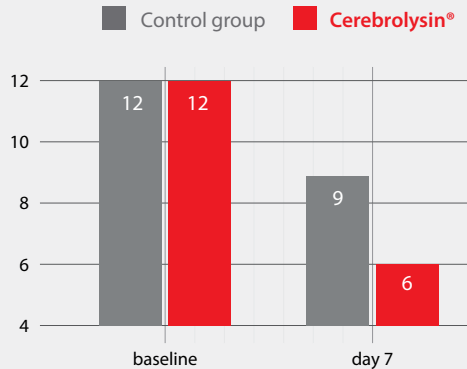
Reduction leads to beneficial results

Higher chance for survival in Cerebrolysin® group



- **Significant survival** benefit in Cerebrolysin® group
- Cerebrolysin® reduces **risk of mortality by -60%**
- **Confirmed** by other studies (e.g. Bornstein)

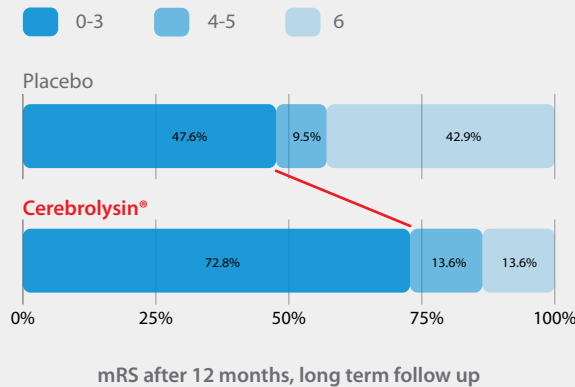
Early recovery



Median value of NIHSS score at different time points

- Early effect of Cerebrolysin®
- **Already on day 7** clearly better NIHSS in Cerebrolysin® treated patients
- Cerebrolysin® **improves NIHSS by 50%**, placebo only by 25%

Regained independence



- **Significant better mRS-Shift** in Cerebrolysin® group
- **73% patients** treated with Cerebrolysin® can live an independent life vs. only 48% in the placebo group

Cerebrolysin® dosage for stroke patients

Daily dosage	Initiation of treatment	Treatment Duration
20 – 50 ml	as soon as possible	10 – 21 days

Cerebrolysin® reduces hemorrhagic transformation – References



Title: Therapeutic effect of Cerebrolysin on reducing impaired cerebral endothelial cell permeability
Author: Teng, Hua, et al.
Journal: NeuroReport 32.5 (2021): 359-366
URL: https://journals.lww.com/neuroreport/Fulltext/2021/03020/Therapeutic_effect_of_Cerebrolysin_on_reducing.4.aspx



Title: Efficacy and safety of Cerebrolysin after futile recanalisation therapy in patients with severe stroke
Author: Z.Poljakovic, et al.
Journal: Clinical Neurology and Neurosurgery Volume 207, August 2021, 106767
URL: <https://doi.org/10.1016/j.clineuro.2021.106767>