



Sugar or Salt (SOS) Trial:

Hyperosmolar therapy in traumatic brain injury

ICU admission
following severe
TBI

SEVERE TRAUMATIC BRAIN INJURY

Screen for eligibility/consent
(see separate flow sheet)

Stage 1 measures (as per local protocol) e.g.:

- Head of bed elevated to 30 degrees
- Avoid venous congestion/remove cervical collar if possible
- Optimise sedation/analgesia (target RASS -5)
- Muscle paralysis to prevent coughing
- PaO₂ >10-12kPa/SpO₂ 94-98%
- PaCO₂ 4.5-5kPa
- Measure CPP with arterial transducer zeroed at the ear
- Target CPP 60-70mmHg
- MAP maintained at > 80mmHg
- Target normoglycaemia
- Consider anticonvulsant therapy

Stage 1 options:

- Target PaCO₂ 4-4.5kPa
- Treat hyperthermia >38°C with targeted temperature management (TTM)
- Ventriculostomy with or without CSF drainage
- Surgical removal of space occupying lesions

Randomisation
Intervention

ICP > 20mmHg for 5 minutes within 10 days of injury
(Despite optimised stage 1 measures as above)

RANDOMISATION

Mannitol

Continue Stage 1 measures
Add bolus 2ml/kg mannitol 20%

Repeat boluses if ICP > 20 until
serum Na > 155

Hypertonic Saline

Continue Stage 1 measures
Bolus 2ml/kg HTS (or osmolar dose)

Repeat boluses if ICP > 20 until
serum Na > 155

FURTHER MEDICAL TREATMENT AT CLINICIAN DISCRETION
IF ICP REMAINS > 20 UNTIL Na > 155

Stage 3 measures (as per local protocol) e.g.:

- Continued medical care
- Barbiturate infusion
- Therapeutic hypothermia
- Consider decompressive craniectomy



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