Therapeutic Hypothermia Protocol for a limited resource setting

Background

- Neonatal mortality rate in Namibia currently stands at 19/1000 live births¹
- 39.8% of neonatal deaths in Namibia are attributed to birth asphyxia²

Aim

To standardise practice of Therapeutic Hypothermia (TH) using whole body cooling (WBC) in a limited resource setting and align care with international evidence based best practice
Provide safe and effective treatment for term infants (>37 weeks) with Hypoxic Ischaemic Encephalopathy (HIE) to minimize the risk or severity of negative short term and long term mortality and neurodevelopmental outcomes

TH in asphyxiated newborns

TH maintains core body temperature at 33.5°C for 72 hrs in newborns (<6hrs of age) with birth asphyxia for the benefit of:

- Significant reduction in death or major neurodevelopmental disability in survivors of TH [RR 0.75 (95% CI 0.68-0.83)]³
- Significant reduction in mortality after receiving TH [RR 0.75 (95% CI 0.64-0.88)]³
- Significant reduction in severe neurodevelopmental disability after receiving TH

Timeline for HIE and TH



[RR 0.24 (95%CI 0.06-0.92)] ³

Protocol for a limited resource setting



Limitations of limited resource settings

- Poor antenatal and obstetric history may have a confounding negative effect on longterm outcomes⁴
- Multidisciplinary team involvement and intensive care support are necessary to ensure optimal TH management but are unavailable in some settings
- The effect of sepsis on outcomes of TH is unknown³
- Temperature control (Strict) Rebound Seizures (next 48 hrs) at 72 hrs Vital signs monitoring Rebound Hyperthermia (237.5°C) Airways (patency, respiratory support, suctioning) Α Breathing & Blood gasses в Circulation & cardiac support (inotropes prn) С Cerebral perfusion (manage convulsions) **Discharge planning** Drugs (sedation, anticonvulsants, antibiotics) D Dermatology (skin & mucosal integrity) Plan post discharge follow-up visits: Electrolytes, Liver & Kidney function Ε Days: 3, 7, 3wks, 6wks, 3mo, 6mo Fluids (IVI) / Feeds Neurodevelopmental assessment Glucose & Gut G Speech Therapy Health Education & family cantered care н Occupational Therapy Infection Control (monitor for sepsis) Physiotherapy Imaging studies (Ultrasound, a/EEG, ECG, MRI) Ophthalmology Other - Discharge planning / Follow up 0 Audiology



References:[1] UNICEF Namibia. (n.d.). Survival of Newborns & Mothers. Retrieved from https://www.unicef.org/namibia/health-nutrition_13649.html; [2] Ministry of Health and Social Services. (n.d.). Namibia National Strategy for Women's, Children's & Adolescents' Health [DRAFT]; [3] Jacobs, S., Berg, M., Hunt, R., et.al. (2013). Cooling for newborns with hypoxic ischaemic encephalopathy. *Cochrane Database of Systematic Reviews*(1).Author:B Callard, RN, MNCNdoi:10.1002/14651858.CD003311.pub3; [4] Flemmer, A. W., Maier, R. F., & Hummler, H. (2014). [Treatment of neonatal asphyxia with a special focus on therapeutic hypothermia]. *Klin Padiatr, 226*(1), 29-37. doi:10.1055/s-0033-1361104UCT 2018