

NCCU CLINICAL GUIDELINES

SECTION: 15

NEUROLOGY

Section: 15 Neurology
Brainz Monitor (OBM) low impedance needle electrodes
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Neonatology Clinical Guidelines
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Authorisation & review by
Neonatal Coordinating Group

BRAINZ MONITOR LOW IMPEDANCE NEEDLE ELECTRODES

Low impedance electrodes should be considered when applying OLYMPIC LOW IMPEDANCE MONITOR (OBM).

ADVANTAGES

1. Improved trace with low impedance
2. Ease of application especially if infant not tolerating handling
3. Improved connectivity in cooled infants as hydrogel electrodes require warmth for adhesion
4. Needles can be used in high humidity environment
5. Ease of application in infants with thick hair
6. Able to obtain good trace on infants on HFO Ventilation

EXCLUSIONS

- Cephalohaematoma
- < 34 weeks, unless requested by the Consultant
- History of a bleeding disorder, i.e low platelets, DIC
- The presence of a Scalp injury

OLYMPIC LOW IMPEDANCE NEEDLE ELECTRODES

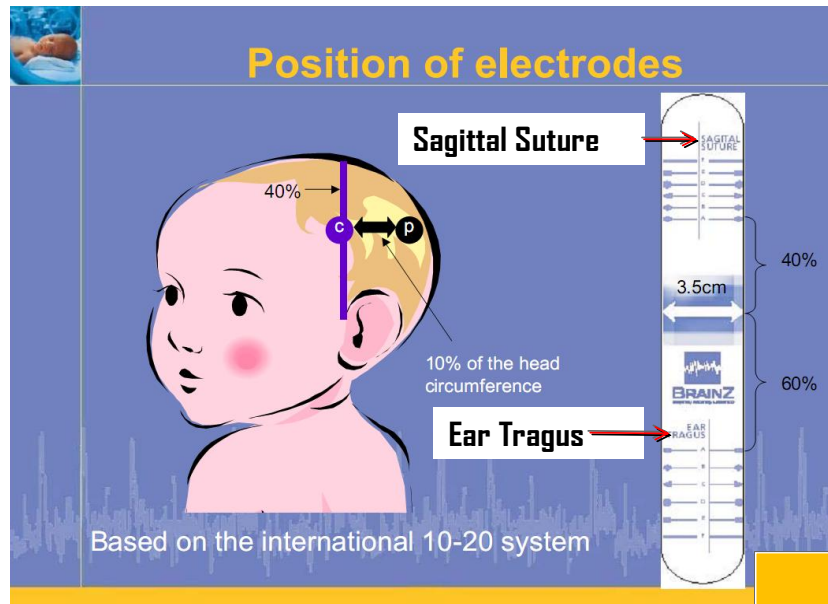
- The blue plastic housing is a safety mechanism so the needles can be handled easily & with minimal risk of a needle stick injury.
- Squeezing open the distal end of the blue safety cover ("*protective shield*") will allow the needle & black hub to glide out. Pull plastic housing to the end of the cable wire (*away from the needle*)
- When needles are removed from the baby, the blue housing should be advanced over the needle & then disposed of in a 'sharps' container.

EQUIPMENT

- Positioning aid (tape measure) term/preterm
- 4 Needle and 1 Hydrogel electrodes
- Sterile surgical marker pen
- Swab stick and sterile water to part hair
- 1 x Packet of gauze to dry hair
- 4 x Chlorhexidine and alcohol swabs
- 3 packets Leukostrips
- 4 x tegaderm
- 2x Skin prep swabs
- Strappit to secure leads
- Sucrose & oral syringe

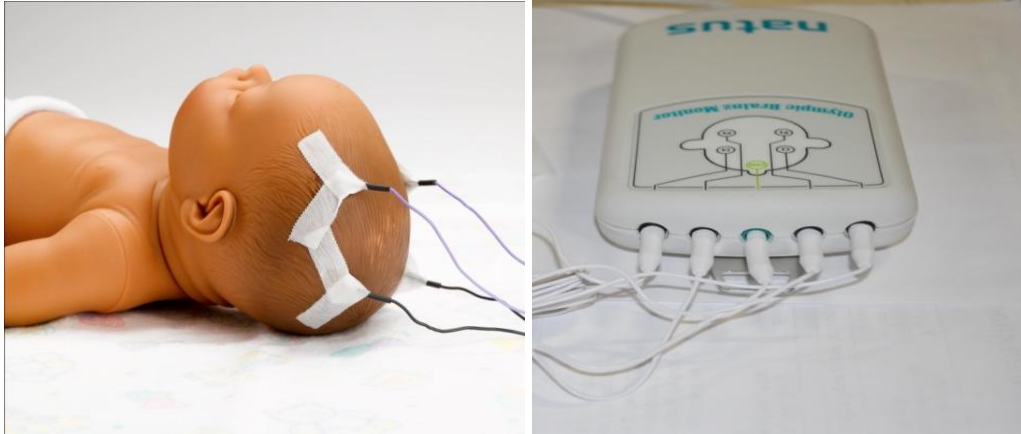
APPLICATION

1. Measure and locate the anatomical land marks: Sagittal suture and ear tragus
2. Align sensor positioning aid (measuring tape) **vertically** on the head & **Parallel** to the face. The forward edge of the measuring aid should touch the ear tragus
3. Match the letters / symbols on positioning aid until the **same** letter / symbol in both locations
4. 1 x Mark with surgical pen on each side of the tape



5. Part the hair vertically (or let it part naturally) away from the marked spot by using sterile water and swab sticks. Dry with gauze
6. Clean skin with Chlorhexidine and alcohol swabs and let it dry.
7. Hold skin taught & insert needle at 30 ° angle, with sensor wire upwards. Ensure that all of the metal is under the dermal layer.
8. Secure the subdermal needle electrode in place using steristrips and the Chevron method (as for securing IVs)
9. Do not apply Tegaderm over the needles if an EEG is imminent. Needles do not have to be removed when doing an EEG. Needles may have to be removed if too much interference whilst EEG is in progress. Please discuss with CNC or Co-ordinator and EEG technician.
10. Repeat the previous steps for the other needle insertions.
11. Placement of Reference Electrode can be placed on the Chest (anterior or posterior). Back of the shoulder or Nape area of the neck.
12. If the scalp is very hairy, use Skin Prep swabs around needle insertion site and allow drying prior to taping.
13. The wires and needles should **all point in same direction.**
14. To prevent needles dislodging & help minimize movement artifact, secure leads in a small loose loop (**strain relief**). Secure as close to the electrodes as possible. A second strain relief can be applied near **DAB** end secured to bedding
15. Electrodes must be inspected hourly for displacement and signs of infection. Ensure needle remains inserted to the hub of the electrode. Needles may remain insitu for duration of monitoring.
16. Commence monitoring
17. Needles can be left in place during CT. Replace with new needle if displaced.

CONNECTING SENSORS



Left anterior: sensor goes into C3: **Left posterior** sensor into P3.
Right anterior sensor goes into C4: **Right posterior** sensor into P4

WHEN CEASING MONITORING

1. Cease monitoring
2. Gently remove tape using adhesive removal wipes if required.
3. Remove needle electrodes pulling sheath over each needle as it is removed. Place in the sharps bin
4. Gentle pressure may be required at the site till bleeding stops.
5. Document time monitoring ceased and condition of insertion sites.

REFERENCES

www.sanmedics.com.au

Natus/Education & Support/Clinical Education www.aEEGcoach.com

A new neurological focus in neonatal intensive care: Sonia L. Bonifacio, Hannah C. Glass, Susan Peloquin & Donna M. Ferriero Nature Reviews Neurology 7, 485-494 (September 2011)