MATUREY UNIT
GUIDELINE:

USE OF TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION (TENS)

SCOPE:
All midwives and nurses working in the maternity unit.

AUTHOR:
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PURPOSE:
To inform and guide midwives and nurses of the option and use of TENS as a non-invasive form of pain relief.

DEFINITIONS:
Transcutaneous Electrical Nerve Stimulation (TENS) is the transmission of low voltage electrical impulses from a hand-held battery-powered generator to the skin via surface electrodes.

GUIDELINE:
The satisfaction expressed by women with TENS may relate to other factors besides pain relief. TENS allows the woman to be in control of the intervention, allows ambulation, has no effects on her mental state, and gives an option to those who wish to avoid medications. There are few potential side effects from TENS when used by normal healthy childbearing women.

The pain of labour is transmitted by the thoracic, lumber and sacral nerves and the TENS relieves it in 2 ways:
- Stimulating large diameter nerve fibres in this region which inhibits the transmission of pain. This is linked to the Gate Control Theory of Melzack and Wall 1965.
- Stimulation of the body’s production of natural endorphins. These are opiate-like substances which provide natural analgesia.

Experienced practitioners state that TENS may be more effective if initiated in early labor, presumably to allow for a build-up in endorphin production before the pain becomes severe. TENS may be more effective for relief of back pain than labor pain in general, but only a few observational studies have investigated this possibility. The maximum effect can take 30-45 minutes to achieve.

To relieve labour pain, one pair of electrodes is placed paravertebrally at the level of T10-L1 (the nerve supply of the uterus passes to the nerves of thoracic T11 and T12), and another at the level of S2 to S4 (Stretching of the pelvic floor involves sacral nerves S2 and 4).

The woman controls the intensity of the current by turning a dial, and varies the stimulation pattern with a thumb switch or by adjusting dials on her TENS unit. TENS causes a buzzing or prickling sensation that may reduce her awareness of contraction pain.
The preferred placement of the electrodes is shown in the diagram in Appendix 1.

- An appropriate conducting gel is required to achieve good contact, and the pads should be made secure with medical adhesive tape.
- The pads are connected to 4 insulated wires which connect into the 9v powered TENS unit and is entirely controlled by the woman. As labour proceeds in intensity so it is necessary to the increase the amplitude of the TENS, to continue to override/block the sensory nervous system.
- The stimulus required is achieved by using the pulse width and pulse rate settings at a level set by the user as pleasant to receive, with 1 being the lowest setting and 10 the highest.
- The booster button can be used with contractions to increase stimulation. This gives a continuous impulse.
- The TENS is powered by a 9v battery.

Caution

- To be used only from 37 weeks gestation
- Electrodes must not be placed on the abdomen at any time during pregnancy or labour, due to concerns of stimulation near vital structures such as the fetal heart.
- Be aware of the risk of local skin reactions to the gel or any tape used.

Contraindications

- Not to be used with fetal scalp electrode, although use with external cardiotocograph is acceptable.
- TENS cannot be used in the pool and if used following immersion in water, the effectiveness may be reduced or could take time to become effective, due to the interruption of stimulation and the nerve pathways reverting back to pre-TENS state.
- TENS is absolutely contraindicated for use if the woman has a pace maker.

Access to TENS machines is via Kate Harris, the TDH Antenatal Educator. Uptake may be dependant upon midwives suggesting its use as one of a number of options for pain control in labour.

REFERENCES:


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