CLINICAL PRACTICE GUIDELINE

Pain management

This document should be read in conjunction with the Disclaimer

Contents

Heat- Local application

Aim

The safe and appropriate use of heat packs at KEMH.

Key points

1. Do not administer local heat therapy to any patient with:
    - Impaired consciousness / cognition
    - Impaired circulation e.g. epidural analgesia
    - Language or communication difficulties
    - Impaired sensation
    - Elevated temperature
    - Haematoma
    - Restricted movement
    - Acute inflammatory conditions
2. Do not apply local heat therapy:
    - Over wounds
    - With balms or liniments
    - Over radiation sites
3. Hot wet towels are **not** recommended as standard practice for the application of heat therapy.
4. Hot wet towels are recognised as concurrent therapy with dermatology cream application.
5. Wheat bags / hot water bottles **shall not** be used at KEMH.
6. Approved silicone gel packs only may be used. Hot packs should be discarded when the outer layer of the pack begins to deteriorate.
7. Hot packs may only be heated in a hospital approved warming device as per manufacturer's instructions.
8. Microwave ovens **should not** be used for heating packs.

Procedure

1. Assess the following prior to commencing heat therapy:
    - Skin appearance- the presence of abrasions, bruises, open areas or oedema.
2. Check the condition of the pack. If it is worn or there is leakage, discard the pack.
3. Enclose the hot pack in a towel or cover. Do **not** apply directly to the skin.
4. Test the temperature of the pack. It should feel comfortable to the inner wrist.
5. Ensure the woman can reach and activate the call bell and instruct her to call for assistance and remove the pack if it feels too hot or causes discomfort.

6. Do not allow the woman to sit or lie on the hot pack as it may burst causing burns.
7. Check the site where the pack is applied 3-5 minutes after the initial application and observe and document signs of redness, skin discolouration or blistering. The heat source must be removed if there is any excessive redness, maceration, pronounced pallor, blistering or increased swelling as thermal injuries can occur.
8. Check the site of application regularly while the heat pack is in situ.
9. Remove the heat pack after 15-30 minutes.
10. Initiate a Clinical Incident Form if the woman's skin integrity is impaired and/ or the area remains red for greater than 20 minutes following removal of the pack.
11. Clean the heat pack as per manufacturer's guidelines before replacing in the hydro collator.

Reference[1]

Epidural and post-operative pain

See KEMH Clinical Guidelines: Anaesthetics for epidural in labour and postoperative pain management.

Pain management in labour

Background

Complementary and Alternative Medicine (CAM) refers to a broad set of health care practices that are not integrated into the dominant health care system.

It has been estimated that as many as 87% of women use CAM during pregnancy, childbirth and postnatally. Substances include but are not limited to: aromatherapy essential oils, herbal, homeopathic and Bach flower remedies. These can be self-administered or given through consultation with practitioners, including acupuncturists, reflexologists, osteopaths and hypnotherapists.

This growth in the use of CAM in maternity care presents midwives with new challenges. Knowledge of and appreciation of the risks and benefits of these therapies are an essential aspect of midwifery care even when the midwives are not be directly involved in administering or advising on them.

Midwives should not incorporate CAM into their practise without obtaining a post registration qualification which is recognised by the appropriate professional body,

thus enabling the midwife the right to practise a particular therapy, and registration in the area of Alternative Medicine.

In addition, many complementary and natural remedies continue to be under-evaluated and some are not amenable to randomised control investigative methods. There is evidence that some therapies are not safe or appropriate for use during pregnancy and childbirth.

These interventions are supported by varying degrees of evidence:

- Analgesic use is reduced with continuous one to one support and also with immersion in water.[2]
- Relaxation techniques, acupuncture and massage reduce pain particularly in the first stage of labour,[2]

Key points

1. Midwives caring for women who choose to consult independent practitioners of complementary therapies and natural remedies should encourage women to ascertain that the practitioners are credentialed to work with pregnant women.
2. Only midwives who have undertaken post registration educational qualifications in specialised techniques and modalities of the recognised CAM should administer or advise pregnant women.
3. These qualifications should be recognised by the appropriate professional body as giving the practitioner the right to practise a particular therapy and registration in the area of Alternative Medicine.

Maternal education

Discuss pain relief options in the antenatal period. Refer to relevant sections in the Pregnancy Birth and your Baby book (p60).

Acupuncture

- Only practitioners who are registered with the National Board can practice using protected titles (e.g. acupuncturist) or make claims to be qualified to practice acupuncture.[3] Registration can be checked online with AHPRA. A trained registered acupuncturist is the only person who should perform acupuncture at KEMH.
- See also: Physiotherapy Use of Dry Needling and Western Acupuncture

Aromatherapy

Key points

1. **Essential oils are for external use only, and should always be diluted**.[4] Avoid contact with the eyes or mucous membranes.[5]

2. The KEMH Obstetric Medicines Information Service (Ph 6458 2723) should be contacted if the safety of an essential oil in pregnancy and breastfeeding is unknown.
3. Massage oils should not be used on women with a history of skin allergies or skin disease.

Common essential oils during labour

- Some aromatherapy oils may be beneficial for intrapartum anxiety reduction and relaxation.[6] Common oils that are used during intrapartum care include: Rose, Lavender, Peppermint, Lemon, Eucalyptus, Bergamot, and Jasmine.

Note: Clary Sage (*Salvia Sclerea)* should NOT be used as it may have an effect of increasing / strengthening uterine activity. This may cause potential risk to women with threatened premature labour, or with a uterine scar.[7]

Hypnotherapy

Supporting women practicing hypnosis or hypnobirthing

- Provide a quiet, peaceful, low-stimulant environment[8] – this may include assisting the woman to play music or hypnotic suggestion tapes. Advise all personnel who may enter the room the woman is practicing hypnosis. A sign on the Labour and Birth Suite room door may be beneficial.
- Assist women by giving suggestive reminders in labour or positive affirmations as needed.
- Refrain from interrupting the woman during contractions.
- Support the woman's autonomy and right to participate in her care. Maintain open non-judgemental communication so needs and expectations can be expressed between the woman, her support partner and staff, forming a collaborative approach to care.[8]
- The woman's affective cues to labour progress may be masked, so observe for objective measures of labour progress and be prepared for unexpected progression in dilation and descent.[8]

Music and audio analgesia

Management

1. The Hospital Physical Resources Department should check all electric music players (any corded device that is to connect with KEMH electricity) for safety prior to use in KEMH. Women should be advised antenatally of this necessity.
2. A headphone is encouraged if the volume of the music impacts negatively on others. This allows the woman to control the volume herself.

Nitrous oxide and Oxygen ($N_2O + O_2$) administration

Background information

Nitrous oxide crosses the placenta[9] causing no effect on the fetal heart rate, and if present in fetal circulation at birth is eliminated quickly when the neonate breathes. Following inhalation it has a rapid onset and recovery,[9] and has been shown to the leave the maternal system within 5 minutes.[10]

Key points

1. Nitrous oxide is classified as a Schedule 4 (prescription only) medication therefore requires a doctor's order for use.

   Document use on the MR270 'Partogram' and the MR810.04 'Medication Administration for Labour and Birth'.
2. Careful coaching of the woman is essential for successful use of self-administered nitrous oxide.
3. Prior to use of N_2O+O_2 the woman should be advised of possible side-effects (e.g. nausea, vomiting, and drowsiness).
4. The woman should be advised that only she should self-administer the N_2O+O_2 to prevent risk of loss of consciousness that can result from gas overdose.
5. Prolonged inhalation of nitrous oxide for more than 6 hours can inactivate vitamin B_{12} interfering with DNA synthesis. This can cause adverse haematological and neurological effects.[11]
6. Due to the high combustion ability of N_2O, the use of oils and greases should be avoided whilst nitrous oxide is in use.[9] Ensure any alcohol based gels/substances have evaporated prior to using N_2O+O_2.[12]
7. Staff should ensure the N_2O+O_2 circuit has no leaks, and the room well ventilated to decrease risk of excessive occupational exposure to staff[9].
8. Inappropriate use may lead to over dosage. Signs and symptoms include passing through stages from light headedness, intoxication to unconsciousness. Other signs include bradycardia, respiratory depression, cardiovascular depression and severe hypotension. If this occurs, discontinue $N_2O +O_2$, provide oxygen and basic life support as required.[9]

Contraindications to use

N_2O+O_2 is contraindicated for women who have:

- an inability to hold a facemask or mouthpiece[13] e.g. maxillofacial fracture
- impaired consciousness or intoxication[9, 14]
- impaired oxygenation e.g. upper respiratory tract infection or respiratory disease[13], deviated nasal septum, nasal polyps, allergic rhinitis[13], chronic obstructive pulmonary disease[13]

- received excessive amounts of intravenous opioids, or morphine derivatives and/or benzodiazepines as sedation may be increased.[15]
- vitamin B_{12} deficiency or are receiving vitamin B_{12}[14]
- recent ear surgery[13]
- a compromised fetus[9]
- are haemodynamically unstable
- hypersensitivity to nitrous oxide or any other component in the gas[9]
- any condition where air is entrapped within a body and expansion may be dangerous (e.g. occluded middle ear, cysts, gross abdominal distension, maxillofacial injuries)[9]

Note: N_2O+O_2 should be used cautiously with patients diagnosed with schizophrenia or bipolar disorders.[13]

Precautions

- Use with caution in women with severe hypotension or those at risk of vitamin B_{12} deficiency.[9]
- If there are disorders affecting oxygenation, the required nitrous oxide concentration will vary.[9]
- Nitrous oxide should be administered with at least 30% oxygen, as when used alone it may increase pulse rate and have respiratory depressant effects.[9]

Side effects of nitrous oxide

Side effects may include:

- excessive drowsiness, dizziness[16] or light headedness[9, 15, 17, 18]
- nausea[16] and vomiting,[9, 11, 15, 17] dry mouth[17]
- shivering[11], headache[16], buzzing in the ears[17]
- rarely 'pins and needles' or numbness[17]
- dreams, hazy memory of labour[17]

Adverse reactions include cardiovascular / respiratory depression, hypotension, hypoxia, raised intracranial pressure and inactivation of vitamin B_{12}.[9]

Equipment

- Corrugated N_2O+O_2 tubing with mouth piece (dispose after use)
- N_2O+O_2 gas source- plumbed in room Midogas machine or portable
    - Portable N_2O+O_2 apparatus 12 (blue cylinder with white quadrants on shoulders) with a pre-regulated concentration of 50% nitrous oxide and 50% oxygen.

Procedure

PROCEDURE	ADDITIONAL INFORMATION
1 Prior to commencement	
Ensure that: • verbal consent is obtained[14] • there are no contra-indications • a new Entonox tubing set is used • there is adequate gas remaining in the Entonox cylinder for required use. Spare cylinders should be available.	**Note**: The N_2O+O_2 apparatus is serviced by a biomedical technician from KEMH every six months. This date should be evident on the machine. Entonox® 50% N_2O and 50% O_2 is supplied in a blue cylinder with white quadrants on the shoulder. Cylinders containing 100% N_2O are blue with no white shoulders.
2 Education	
• Explain the effects, risks, benefits and restrictions of using N_2O+O_2.	
• Explain the importance of the timing of commencement of inhalation.	The woman should be encouraged to begin inhalation 30 to 50 seconds prior to commencement of the contraction.[17]
• Demonstrate the importance of maintaining a seal around the mouthpiece and instruct the woman to inhale and exhale through the mouthpiece.	A poorly used mouthpiece may lead to leakage of the gas which will decrease the concentration that the patient receives[13], and increase risk of contamination from the gas to staff.[19]
• Explain that it is imperative the woman self-administers the N_2O+O_2. No one else is to hold the mouthpiece.[17]	Self-administration is a safe guard in preventing overdose. As drowsiness increases, the mouth piece will fall away making loss of consciousness unlikely.[19]
• Instruct and supervise the woman until she is confident and proficient in the use of N_2O+O_2.	
3 During contractions	
• Instruct the woman to begin breathing deeply at a normal rate on the mouthpiece at the onset of the contraction (or 30 seconds prior where possible) and cease when the contraction pain eases or abates.	The delayed time lag can be shortened by high-inspired concentrations, and increased ventilation (deep, slow breaths).[17]

PROCEDURE	ADDITIONAL INFORMATION
• Palpate the contractions to assist the woman in recognising early onset. • Continuously assess the woman's pain level and conscious state. • Observe for signs of over-dosage e.g. drowsiness, disorientation, lack of cooperation/ aggressiveness, unconsciousness ➢ If overdose occurs cease N_2O+O_2 and protect the woman's airway until she is recovered. ➢ Following recovery, recommence the N_2O+O_2 but at a lower concentration.	Nitrous oxide may be used at any time in labour as it does not affect uterine contractility. Concentrations of nitrous oxide around 70% may depress consciousness.[9] Overdosing is generally prevented by self-administration as the woman's mouthpiece or mask will fall away if she becomes drowsy. **Note:** Administration of opioids prior to or with N_20 must be undertaken with caution as the combination of these can more easily render a woman unconscious.[17]
4 Between contractions	
Ask the woman to remove the mouthpiece and encourage her to breathe normally.	
5 Documentation	
• A medical order for N_2O+O_2 on the 'Medication Administration for Labour & Birth' MR 810.04 form. • Document the time of commencement, concentration, and ongoing assessments of pain in the woman's: ➢ Medical record MR250 ➢ Partogram MR270	

Reflexology

Reflexology should not be performed on women in labour unless verbal consent is obtained. It should only be performed by a person who has trained in an accredited course in reflexology.

Transcutaneous Electrical Nerve Stimulation (TENS)

Key points

1. Women should be encouraged to commence preparation about the use of TENS machine in the antenatal period. The physiotherapy department at KEMH provides monthly patient education sessions on TENS. A patient information sheet: "The Use of TENS in Labour" is also available from the physiotherapy department.
2. The TENS is contraindicated / should not be used when a woman:
    - has a pacemaker in situ.[20]
    - labours in the bath or shower.[20]
3. Avoid the use of TENS prior to 37 weeks gestation.[20]
4. A patient with epilepsy using the TENS should never be left alone. A seizure could accidently increase the rate/level of the impulse and risk skin damage.[21]

Water for pain relief in labour

See KEMH Clinical Guideline: O&G: Water for Pain Management during Labour and/or Birth [procedure].

Pain management in palliative care

See KEMH Clinical Guidelines, Obstetrics & Gynaecology:

- Palliative Care
- Palliative Care Intrathecal Administration of Medications
- Niki t34 syringe pump: Continuous subcutaneous infusion

References

1. Hughes J. **Pain Management From Basics to Clinical Practice**. Philadelphia: Churchill Livingstone Elsevier; 2008.
2. Australian and New Zealand College of Anaesthetists. Acute pain management: Scientific evidence: ANZCA; 2015. Available from: https://www.ranzcog.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical%20-%20Training/ANZCA-Acute-Pain-Management-Publication-4th-edition.pdf?ext=.pdf%20-%20page=522.
3. Health Practitioner Regulation National Law (WA) Act 2010. Version 01-f0-01, (2018).
4. Nanayakkara S. Complementary therapies in midwifery practice. In: McCabe P, editor. Complementary therapies in nursing and midwifery from vision to practice. Melbourne: Ausmed; 2001. p. 291-302.
5. Meyer M. Aromatherapy. In: McCabe P, editor. Complementary therapies in nursing and midwifery from vision to practice. Melbourne: Ausmed Publications; 2001. p. 131-46.
6. Mander R. **Pain in childbearing and its control: Key issues for midwives and women**. 2nd ed.

West Sussex, UK: Wiley-Blackwell; 2011.
7. Burns E, Blamey C, Et al. An investigation into the use of aromatherapy in intrapartum midwifery practice. **Journal of Alternative and Complementary Medicine**. 2000;6(2):141-7.
8. Beebe KR. Hypnotherapy for labor and birth. **Nurs Womens Health**. 2014;18(1):48-58. Available from: http://onlinelibrary.wiley.com/doi/10.1111/1751-486X.12093/pdf
9. BOC Gases Australia Ltd. Nitrous oxide refrigerated liquid gas medicinal. North Ryde, NSW: BOC; 2008.
10. Rooks JP. Labor pain management other than neuraxial: What do we know and where do we go next? **Birth**. 2012;39(4):318-22.
11. AMH. **Australian medicines handbook**. 16th ed. Adelaide, SA: AMH; 2015.
12. BOC. Medical nitrous oxide 2009 [Available from: www.boc.co.uk.
13. Becker DE, Rosenberg M. Nitrous oxide and the inhalation anesthetics. **Anesthesia Progress**. 2008;55(4):124-31.
14. Stewart LS, Collins M. Nitrous oxide as labor analgesia: Clinical implications for nurses. **Nursing for Women's Health**. 2012;16(5):399-09.
15. BOC. Medical gas data sheet (MGDA): Medical nitrous oxide: Essential safety information. 2009 [Available from: http://www.boconline.co.uk/health/safety_data_sheets/index.asp#N.
16. Air Liquide Healthcare. Medical nitrous oxide refrigerated liquid: Material safety data sheetAlexandria, NSW: Air Liquide Healthcare Pty Ltd; 2013. Available from: http://docs.airliquide.com.au/msdsau/ALH611.pdf.
17. Rosen MA. Nitrous oxide for relief of labor pain: A systematic review. **American Journal of Obstetrics and Gynecology**. 2002;186(5):S110-26.
18. Klomp T, van Poppel M, Jones L, et al. Inhaled analgesia for pain management in labour. **Cochrane Database of Systematic Reviews,** . 2012 (9).
19. Rooks JP. Use of nitrous oxide in midwifery practice: Complementary, synergistic, and needed in the United States. **Journal of Midwifery & Women's Health**. 2007;52(3):186-89.
20. Johnson R, Taylor W, Smith S, Bayes S. Non-pharmacological pain relief: Chapter 34. Skills for midwifery practice. 4th edition-Australia and New Zealand ed. Chatswood, NSW: Elsevier Australia; 2019.
21. Mainstone A. Trancutaneous electrical nerve stimulus (TENS). **British Journal of Midwifery**. 2004;12(9):578-81.

Related policies and legislation

Legislation- *Health Practitioner Regulation National Law (WA) Act 2010*. Version 01-f0-01. (2018)

NMHS Complementary and Alternative Medicines Policy (inpatient use of complementary and alternative medicines (CAM) when patients are admitted to NMHS sites)

NMHS Occupational Safety and Health Policy

Related WNHS policies, procedures and guidelines

Anaesthetics: Labour Analgesia and Postoperative Analgesia (access via Healthpoint)

Pharmacy: A-Z Medication Protocols: Morphine, Pethidine

Women's Health: Physiotherapy: Physiotherapy Use of Dry Needling and Western Acupuncture

Resources and related forms

ANZCA 2015 Acute Pain Management

ACM Code of Conduct 2018

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