CLINICAL PROTOCOL FOR THE USE OF INJECTED LOCAL ANAESTHETICS IN COMMUNITY TRUST SERVICES

RATIONALE

This clinical protocol outlines the injected local anaesthetics used by Trust services and the circumstances in which they are used. The protocol includes contraindications and cautions for the use of local anaesthetics.

It should be stressed that the use of local anaesthetics is very safe and is the mainstay of pain and anxiety control in minor operative procedures. In dentistry it also forms an adjunct to treatment under conscious sedation and general anaesthesia.

This clinical protocol does not include service specific information on the administration process, for example as used in dentistry or podiatry. It also does not include topical (surface) applications of local anaesthetics. This is because single applications of a topical local anaesthetic will not generally cause systemic side effects.

TARGET GROUP

The protocol applies to all Trust staff who are required to inject local anaesthetics as part of their job role.

TRAINING

All Trust staff who are employed by Wirral Community NHS Trust will attend the Trust’s mandatory training as identified on the Trust’s Training Matrix, available on the Trust’s website. In addition, the relevant mandatory training, as identified in the Service’s Training Matrix must also be followed.

RELATED POLICIES

Please refer to relevant Trust policies and procedures.
AUTHORITY TO ADMINISTER

All injectable local anaesthetics are prescription only medicines and as such they must be prescribed by an authorised prescriber or administered via an appropriately ratified patient group direction.

The only exception to this is the chiropody service where a chiropodist or podiatrist with a certificate of competence in the use of analgesics is authorised to administer certain local anaesthetics during the course of their clinical practice. A full list of medicines that a chiropodist or podiatrist can administer is available on the MHRA website www.mhra.gov.uk

TRUST SERVICES THAT ADMINISTER INJECTED LOCAL ANAESTHETICS

Community Dental Services

Dentists can legally write prescriptions for medication within their scope of practice. The following local anaesthetics are prescribed for use within the community dental services for local injection in dental procedures:

Articaine 4% with Adrenaline [epinephrine] (1 in 100,000) Cartridges
Mepivacaine 3% Cartridges
Lidocaine 2% with Adrenaline [epinephrine] (1 in 80,000) Cartridges
Prilocaine 3% with Octapressin Cartridges

CHIROPODY / PODIATRY SERVICES

The following local anaesthetics are administered by appropriately authorised chiropodists or podiatrists for local injection during toe nail surgery.

Mepivacine 3% cartridges
lidocaine 2% ampoules

UNPLANNED CARE

Lidocaine 1% or 2% ampoules are authorised for administration under Patient Group Direction (PGD) for cleaning, examination or management of wounds administered via subcutaneous infiltration

CONTRACEPTION AND SEXUAL HEALTH SERVICES

Lidocaine 1% or 2% ampoules are authorised for administration under PGD for insertion or removal of etonogestrel implants administered via subdermal injection
MODE OF ACTION

Injectable local anaesthetics used by the Trust and listed above are amide type local anaesthetics. They work by causing a reversible blockage of impulse propagation along nerve fibres by preventing the inward movement of sodium ions through the nerve membranes.

If delivered in excessive doses or inadvertently given intravascularly, local anaesthetic medicines may rapidly reach the systemic circulation and affect the excitable membranes of the brain and myocardium. Systemic symptoms of local anaesthetic toxicity will therefore usually affect the central nervous system or the cardiovascular system.

USE OF VASOCONTRACTORS

Local anaesthetics cause dilation of blood vessels. The addition of a vasoconstrictor such as adrenaline [epinephrine] to the local anaesthetic preparation diminishes local blood flow, slowing the rate of absorption and prolonging the anaesthetic effect, hence reducing the total dose required to achieve adequate analgesia.

As with all local anaesthetics, great care must be taken to avoid inadvertent intravascular administration to avoid systemic side effects.

Adrenaline [epinephrine] must not be administered with a local anaesthetic in digits or appendages, because of the risk of ischaemic necrosis.

CONTRA-INDICATIONS TO LOCAL ANAESTHETICS

Patients with hypersensitivity to an amide type local anaesthetics should not receive any amide type local anaesthetic, due to the likelihood of cross sensitivity.

The manufacturer’s product literature should be checked prior to administering any local anaesthetic to ensure the patient does not have hypersensitivity or contraindications to any component of the local anaesthetic.

Local anaesthetics can cause ototoxicity and should not be applied to the middle ear.

Patients with porphyria should not be given articaine or mepivicaine, Prilocaine should be avoided in patients with congenital or idiopathic methaemoglobinemia

Prilocaine should be avoided in patients who have glucose-6-phosphatase deficiency as there is a greater risk of methaemoglobinemia

CAUTIONS FOR ADMINISTRATION OF LOCAL ANAESTHETICS

The use of local anaesthetics should be carefully considered in any patient who is currently systemically unwell or who has an unstable medical condition

Local anaesthetics should be administered with caution in children (consult product literature for age restrictions for individual local anaesthetics), elderly or debilitated patients (consider dose reduction), or in patients with impaired cardiac conduction, cardiovascular...
disease, hypovolaemia, shock, impaired respiratory function, epilepsy, or myasthenia gravis.

Since amide type local anaesthetics are metabolised in the liver and excreted via the kidneys, they should be used with caution and at a lower maximum dose in patients with liver and renal disease.

For patients with cardiac disease (such as ischemic heart disease, arrhythmia’s, angina) caution should be taken when giving any local anaesthetic, especially those containing adrenaline. However good pain control is imperative prior to invasive procedures as poor pain control is significantly more likely to precipitate a cardiac event than the delivery of local anaesthetic agents.

Patients with known or a history of a deficiency in plasma cholinesterase activity should not receive local anaesthetics with adrenaline.

For pregnant or breastfeeding patients refer to product literature for individual local anaesthetics.

Local anaesthetics should be injected into inflamed or infected tissues with caution, as this can spread infection and could theoretically lead to an increased absorption into the blood and an increased possibility of systemic side effects.

INTERACTIONS WITH OTHER MEDICATION

Increased myocardial depression may occur when local anaesthetics are given with anti-arrhythmic medication
Prilocaine should be avoided in patients taking antimalarials or sulphonamides as there is a greater risk of methaemoglobinaemia
For a full list of interactions consult product literature

Interactions with Local Anaesthetics Combined with Adrenaline

Caution should be taken to avoid large doses, in patients receiving medication with sympathomimetic properties, e.g. monoamine oxidase inhibitors (or within 2 weeks of stopping), tricyclic antidepressants, serotonine/noradrenaline reuptake inhibitors antidepressants or phenothiazines. However these reactions with anaesthetics containing adrenaline whilst theoretically possible have not been noted clinically. Consult product literature for full details

SIDE EFFECTS

For a full list of side effects consult product literature

A small number of reactions may result from hypersensitivity or idiosyncrasy, including persistent paresthesias of the lips, tongue and oral tissue. Articaine has been shown to
sometimes lead to prolonged anaesthesia, but more often paresthesia/anaesthesia/hyperesthesia are related to the needle hitting and damaging the nerve and not the local anaesthetic solution itself.

Anaphylactic reactions have rarely been reported.

True systemic adverse reactions involving the central nervous system and the cardiovascular system are rare. They usually result from high plasma levels which may be due to excessive dosage, rapid adsorption, inadvertent intravascular injection or slow metabolic degradation, injection technique or volume of injection.

Central Nervous System reactions are excitatory and/or depressant and may be characterized by lightheadedness, nervousness, apprehension, euphoria, confusion, dizziness, headaches, malaise, agitation, drowsiness, tinnitus, blurred or double vision, nausea, vomiting, sensations of heat, cold or numbness, twitching, tremors, convulsions.

Cardiovascular reactions are usually depressant. Premonitory signs include sweating. Feeling of faintness, changes in pulse or sensorium may result in progressive cerebral hypoxia.

Methemoglobinemia may be rarely caused by local anaesthetics.

MANAGING EMERGENCIES

Medical emergencies relating to local anaesthetics are rare. This risk can be minimised by having an up to date medical history, good technique and using the minimum amount of local anaesthetics required.

The most common medical emergency is a simple faint, this is often not related to the drug itself, but the unpleasant procedure involved in delivering the local anaesthetic. Practitioners should be able to distinguish between a faint and an anaphylactic reaction. Should anaphylaxis be suspected arrange for urgent transfer to hospital and follow the multidisciplinary procedure for managing an anaphylactic emergency, MM SOP 24.

- Observe for clinical signs of adverse reaction or systemic administration, (including methemoglobinemia, symptoms of which are cyanosis of nail beds and lips, fatigue and weakness).
- **If any signs of acute toxicity are suspected, the local anaesthetic injection should be immediately stopped and urgent medical attention sought**
- Where clinically appropriate and if available administer emergency oxygen as per the Trust procedure for handling, use and storage of emergency oxygen within Community Trust Services, MMSOP 30
- If required, follow the Trust procedure for Basic Life Support for Adults or Basic Life Support for Paediatrics or where clinically appropriate, the Deteriorating Patient Policy.
Individual doses

Consult product literature

For a Summary of Product Characteristics for
Articaine 4% with Adrenaline (1 in 100,000) 2.2 ml Cartridges (Septanest)
Mepivacaine 3% Cartridges 2.2 ml (Scandonest 3% Plain)
Lidocaine 2% with Adrenaline (1 in 80,000) 2.2 ml Cartridges (Lignospan Special)
www.septodont.co.uk

For a data sheet for
Prilocaine 3% with Octapressin 1.8 ml Cartridges (3% Citanest® DENTAL with
Octapressin)

For a Summary of Product Characteristics for
Lidocaine 1% or 2% ampoules
http://www.medicines.org.uk/EMC/medicine/26502/SPC/Lidocaine+1++w+v+solution+for+injection/

Administration

Follow departmental procedures for individual procedures.

In addition:

- Prior to any clinical session, adrenaline 1mg in 1ml must be available to be administered in the rare event of an anaphylactic reaction.
- For Community Dental Services, ensure that the recommended emergency medicines are available as outlined in the internal dental document, “Guidelines for Medical Emergencies in Community Dental Clinics”.
- Take a detailed medical history to establish if there are any known contraindications
- The lowest dosage that results in effective anaesthesia should be used.
- Never exceed the manufacturer’s recommended maximum dose.
- Extreme care is needed to avoid intravascular injection. Local anaesthetics should be administered slowly using an aspirating technique in order to detect inadvertent intravascular administration. (If blood is aspirated, the needle must be repositioned until there is no return of blood in the syringe). For nurses administering via subdermal injection or Subcutaneous infiltration the risk of intravascular administration is extremely low and aspiration is therefore not required for administration via this route.
- If a practitioner is struggling to achieve adequate anaesthesia in a patient, then prior to the maximum dose of local anaesthetic being administered, the practitioner should consider abandoning the procedure and rebooking the patient on a different day and/or with a more senior practitioner.
Local anaesthesia around the oral cavity may impair the patient’s sensation of swallowing. Should this occur simple calm reassurance is usually sufficient to allow treatment to continue.

Following most regional anaesthetic procedures, maximum arterial plasma concentration of anaesthetic develops within about 10 to 25 minutes, so careful surveillance for toxic effects is necessary during the first 30 minutes after injection.

INFORMATION FOR PATIENTS

Patients who experience systemic adverse effects during or immediately after administration of a local anaesthetic should avoid driving.

For Dental Patients Only
Patients should be cautioned against the loss of sensitivity and possibility of biting trauma should the patient attempt to chew prior to return of sensation.

RECORDS

A full record of all local anaesthetics prescribed and/or administered must be made in the patient’s record including the name of the local anaesthetic, the amount administered, batch number and expiry date.

INCIDENT REPORTING

Clinical incidents or near misses must be reported via the Trust’s Incident Reporting System.

SAFEGUARDING

In any situation where staff may consider the patient to be a vulnerable adult, they need to follow the Trust Safeguarding Adult Policy and discuss with their line manager and document outcomes.

EQUALITY ASSESSMENT

During the development of this protocol the Trust has considered the clinical needs of each protected characteristic (age, disability, gender, gender reassignment, pregnancy and maternity, race, religion or belief, sexual orientation). There is no evidence of exclusion of these named groups.

If staff become aware of any clinical exclusions that impact on the delivery of care, the incident should be reported using the Trust Incident Reporting System and an appropriate action plan put in place.

If any concerns re this section discuss with a senior procedure lead in the Quality and Governance Service.
REFERENCES

www.mhra.gov.uk
www.septodont.co.uk
http://www.medicines.org.uk/EMC/medicine/26502/SPC/Lidocaine+1++w+v+solution+for+injection/
British National Formulary 63 edition March 2012
www.bnf.org

APPENDIX ONE

CONTROL RECORD

Title Clinical Protocol for Injected Local Anaesthetics
Purpose This protocol outlines the injected local anaesthetics used by Trust services and the circumstances in which they are used. The protocol includes contraindications and cautions for the use of local anaesthetics and the management of emergencies arising from the use of local anaesthetics
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Subject Experts L Knight
Document Librarian QGS
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