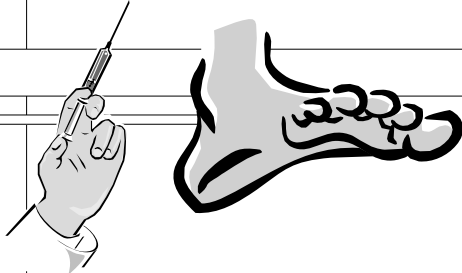


## LOCAL ANAESTHETICS



## Aims of this session:

- To make you familiar with the patient preparation and documentation when giving an LA
- To discuss equipment preparation, selection of LA and needle sizes
- To become familiar with calculating maximum safe dose of LA's
- To review the process of digital blocks
- To discuss practical sessions and rosters to commence 29<sup>th</sup> April.

## Main uses of LA in podiatry



- Pain relief
- Procedural
- Diagnostic

## LA History & Assessment

- Prior to administration of an LA essential to take thorough history in every case –
- Podiatrist must determine the 'relative risk' presented by the patient
- Local anaesthetics are drugs and like all drugs exert actions on many parts of the body
- **Must consider:**
  - Excitable membranes such as CNS and CVS
  - Biotransformation in the liver
  - Excretion by the kidneys

## Special attention given to:

- Central Nervous System (CNS) disease
- Cardiovascular system (CVS) disease
- Liver disease
- Kidney disease
- Diabetes
- OA or RA or Poliomyelitis
- Skin disorders
- Allergies
- Specific viral diseases
- Previous local anaesthetics/surgery
- Pregnancy
- Infection
- Medication

## CNS considerations

- Stroke, epilepsy, TIA's, etc
- Central nervous system may be stimulated by small amounts of LA circulating in blood
- Care should be taken to use smallest dose possible and monitor patient
- Also stress of the procedure could trigger an epileptic fit

## CVS considerations

- Heart disease, hypertension etc...
- Monitor blood pressure and use smallest dose possible

## Liver, kidneys, diabetes...

- **Liver:**
  - May have reduced ability to metabolise amide anaesthetics
- **Kidneys:**
  - Impaired renal function could alter rate of excretion of drug but small doses do not pose significant risk
- **Diabetes:**
  - Well controlled diabetes should not be a contraindication for LA, however, poorly controlled diabetes may place the patient at increased risk of infection at the injection site

## OA, RA, Polio...

- Check medications carefully
- Patients may be taking steroid medications

## Skin disorders...

- Check for presence of skin disorders
- Eczema may indicate potential sensitivity to LA

## Allergies....

- True allergy to LA is rare however it can occur
- Allergic response more likely to occur with ester type LA rather than amide LA
- May be related to the preservative in multi-dose vials
- Avoid using multi-dose vials

## Specific viral diseases....

- Hepatitis, HIV etc
- Main issues are an increased risk of infection and potential liver dysfunction
- Take special care with infection control procedures and use lowest dose possible

## Previous LA/surgery

- Gives an indication if patient was able to tolerate LA etc..

## Pregnancy...

- Should be very cautious in administration of any drug during pregnancy
- Contact patient GP if necessary
- Avoid administration of LA if possible especially in first trimester (first 3 months)

## Medication precautions...

- Most drug interactions due to competition to binding in plasma – or elimination by liver
- Care should be taken with MAOI's which are drugs prescribed for major depression
- Caution should also be exercised when patients taking tranquillisers, anti-hypertensive agents etc.

## Infection at site of injection..

- Avoid injecting into areas of infection
- Can potentially spread the infection
- Also pH of local tissue is more acidic and can inhibit the action of the LA
- Better to use salt footbaths until infection reduced then give LA

## Documentation

- Patient records
- Consent form
- Local anaesthetic system review
- Post-operative advice sheet
- Operation sheet



## Summary...

- Remember you are administering a drug
- Due to the absorption of the drug into the blood stream there are circulating levels of LA in the plasma
- Unexpected effects may be seen on CNS, CVS or other systems
- You must ensure you take a thorough history to determine the relative risk to the patient

## Equipment



- Needle
- Syringe
- Anaesthetic
- Sharps container
- Alcohol swab
- Gloves
- Gauze
- Dressing

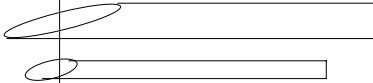
## Needles



- Correct sizes for the procedure
- Ensure sterility
- Within expiry date
- Correct loading technique
- Unsheathe needle just prior to use
- Correct disposal

## Needles sizes:

- Needle size is referred to as 'gauge'
- Smaller the gauge number the larger the central aperture of the needle is
- EG
  - 21 gauge needle is much thicker than a 27 gauge needle



## Selecting the correct gauge

- Use larger needles for drawing up solution
  - Can draw up more liquid/fluid quickly
- As a guide use a gauge 25 – 27 for injection into the toes
- Most commonly we use 27 gauge needle for digital anaesthesia
  - Will be less painful for the patient

## Syringes

- Syringes are the plastic disposable barrel that attaches to the needle
- Come in a variety of sizes
- Sterile packaged single use items
- Syringes are referred to by their volume
- EG
  - 1ml, 2ml, 2.5, 3, 5, 10am etc....
- The larger the volume the bigger the syringe

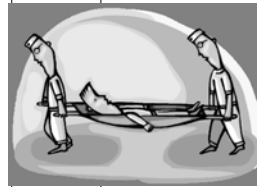
## Needles and Syringe sizes

NEEDLE SIZE	SYRINGE SIZE	USE
27 gauge	1, 2, 2.5, 5ml	Digital injection
25 gauge	<10ml	Digital/foot injection
21/23 gauge	Any size	Loading anaesthetic
16-19 gauge	10ml and above	Aspiration

## Anaesthetic

- Comes in small plastic container (ampoule)
- Sterile solution inside
- Must break off top and draw up solution
- **Must check:**
  - CONTENTS LABEL (LIGNOCAINE PLAIN)
  - PERCENTAGE OF SOLUTION – we usually use 1% or 2%
  - EXPIRY DATE
  - COLOUR AND APPEARANCE OF SOLUTION – discard any solution that appears cloudy or has precipitate in it

## Patient preparation



- Explain procedure
- Informed consent
- Relax patient
- Patient recumbent
- Adequate exposure
- Skin preparation

## Common Agents

Anaesthetic	pKa	Lipid sol	Prot. bound	onset	duration	MSD plain	MSD adren

## Lignocaine (Xylocaine)

- **Commonest LA**
- 0.5-2% for injection, 4-10% topical, EMLA cream
- Duration 45-120 minutes (doubled with adrenalin – but not used in digital procedures)
- Also used for cardiac effects or CNS depressant to prevent seizures
- Toxic dose >400mg

## EMLA cream & patch

- Eutetic Mixture of Local Anaesthetic
- 25mg/gm of lignocaine and prilocaine
- Applied under occlusion for 1 hour to prevent needle pain, 2 hours for skin surgery
- Uses in podiatry?

## Additives- Vasoconstrictor

- Adrenalin (epinephrine) is a vasoconstrictor
- Only with short acting anaesthetics
- Prolongs duration by reducing blood flow into the area of LA injection
- Reduces toxicity
- Not to be used in digits or with ring block
- Can reduce blood flow to the point of ischaemia
- **PRACTICE POINT:** You must ensure that the solution you inject is lignocaine plain ie that it has no adrenaline in it

## Additives- Preservatives

- Methylparaben, bacteriostatic agents
- Found in multi-use vials
- Associated with allergic reactions
- **PRACTICE POINT: Avoid use of multi-dose vials if possible – mostly use single dose vials or discard unused portion**

## Check list for safe use of L.A.

- Thorough medical Hx
- Obtain informed consent
- Resuscitation equipment on hand
- Calculate MSD
- Check LA: type, %, vol., exp. Date, etc
- Correct needle and syringe size
- Aspirate as required when injecting
- Maintain verbal contact
- Observe for toxic reaction/ anaphylaxis
- Accurate documentation following procedure

## Equipment preparation

- Prepare eq. Out of sight of patient
- Handling of needle and syringe
- Snap off top of anaesthetic container
- Care when removing needle cap
- Insert syringe or needle
- Draw down solution
- Attach needle for injection
- Tap out bubbles
- Check how much solution in syringe
- Do NOT recap needles after use

## Post injection procedure

- **DO NOT RECAP NEEDLES**
- Assess how much solution has been used for estimating dosage given
- Dispose of sharps at site of procedure immediately
- Disposal is the responsibility of person carrying out the procedure
- Drop sharps into containers rather than push due to regular overfilling....

## What do you need to document:

- That you obtained informed consent
- Preparation of the patient
- Time of administration of LA
- Volume given, % of solution, total dosage, name of LA etc
- Maintenance of verbal contact following administration
- Any adverse effects experienced by the patient

Informed consent obtained from patient to administer LA for partial nail avulsion. Left hallux swabbed with alcohol, 2mls of 2% lignocaine plain (40 mgs) given using bi-lateral dorso-plantar block at 2.10pm. Verbal contact maintained with patient following procedure.