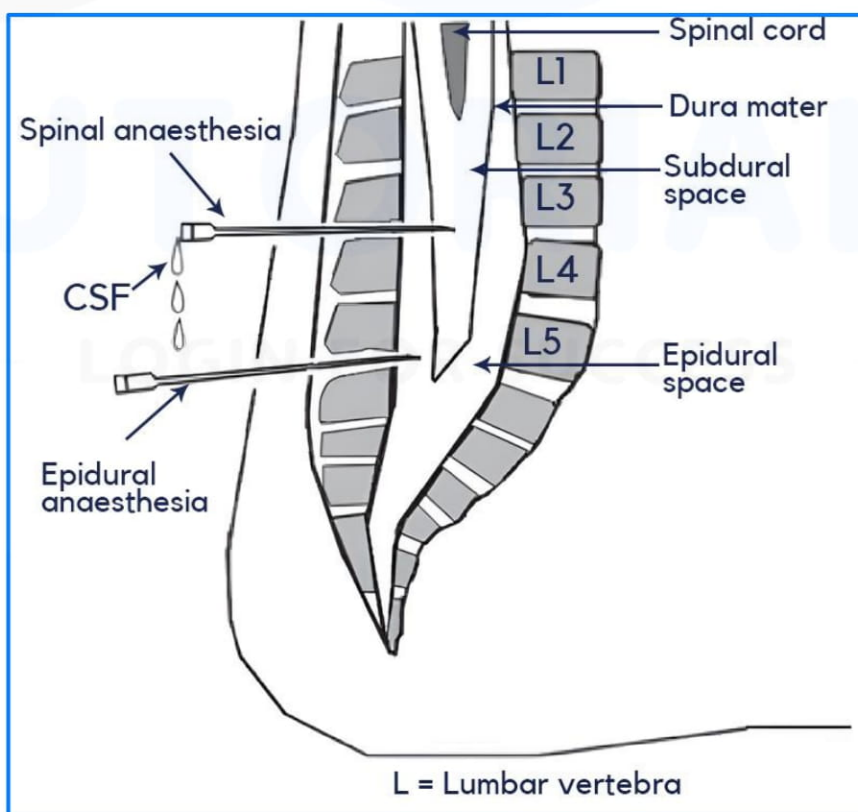
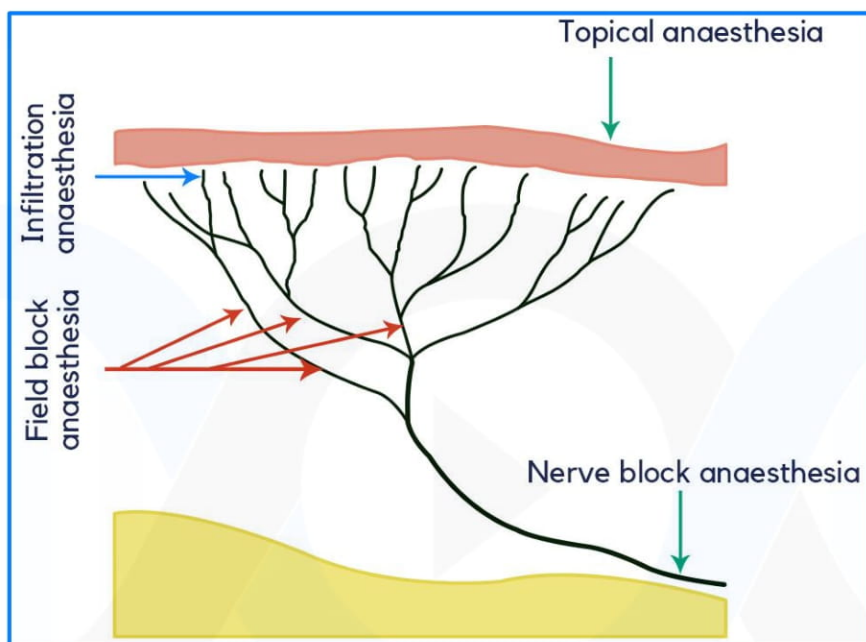
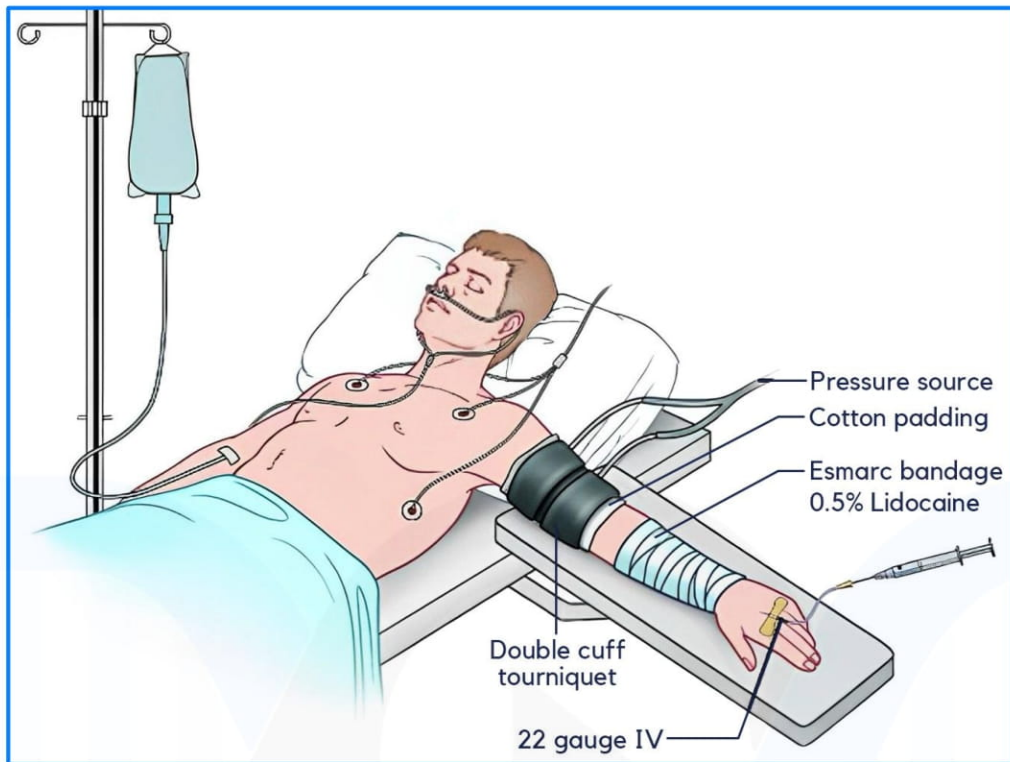


REGIONAL ANAESTHESIA

- Regional anaesthesia: Deposition of Local anaesthetic locally at the site with particular nerve fibre to be anaesthetised temporarily.
- Depending on site of deposition of LA, regional anaesthesia can be divided into different types



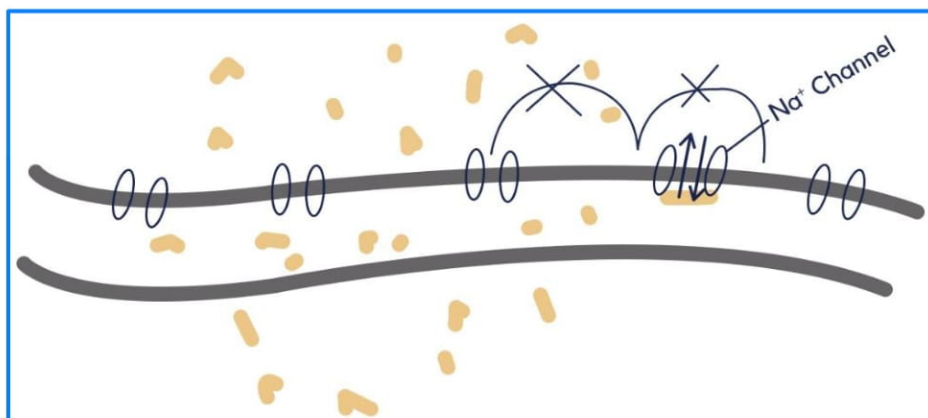
- Field block- Used for dental procedures



- To minimise toxicity in IVRA
- Lignocaine – DOC
- Bupivacaine – Contraindicated

Contraindications of IVRA

- Sick cell disease
- Peripheral vascular disease
- Scleroderma



- Acts on Na⁺ channel
- Acts on Na⁺ channel and most effectively blocks inactive closed Na⁺ channel
- Binds only on cytoplasmic site
- LA + Vasoconstrictor (Adrenaline – 1:200000)
- Advantages:
 - Fast onset
 - Duration prolonged
 - Intense block
 - Decreases systemic toxicity
- Disadvantage: Pain at the site
- LA + Adrenaline –
 - Contraindicated at end artery
 - Finger block
 - Toe block
 - Penile block

Sensitivity of LA on Nerve Blocker

00:12:28

- A:
 - A α Miller's anaesthesia
 - A β A δ > A γ > A β > A α > B > C
 - A γ
 - A δ Others:
- B B > A δ =C > A γ > A β > A α
- C Autonomic > Sensory > Motor

Classification

00:14:36

	Ester	Amide	
Short acting	Cocaine	Lignocaine	Intermediate acting
	Procaine	Mepivacaine	
	Chloroprocaine	Prillocaine	
Long acting	Benocaine	Bupivacaine/Lenobupivacaine/ Ropivacaine	Long acting
	Tetracaine	Dibucaine	

- Ester LA's are metabolised by pseudocolinesterase except cocaine.
- Amide LA's undergo Hepatic metabolism

Cocaine

00:16:50

- 1st LA
- Natural LA
- Sympathomimetic agent
- Increases BP and HR
- Vasoconstrictor

Lignocaine

00:18:30

- Most common LA
- Only LA that can be given iv as analgesia, anti-epileptic, anti arrhythmic
- Maximum safest dose of lignocaine + adrenaline is 7ml/kg BW
- Most cardiotoxic LA: Bupivacaine. It is a racemic mixture
- Levobupivacaine/ Ropivacaine are safest mixtures

Complications

00:19:40

1. LAST- Local anaesthetic systemic toxicity
 - CNS:
 - Apprehension
 - Peri oral numbness
 - Tinnitus
 - Seizures
 - CVS:
 - Hypotension
 - Arrhythmia
 - Cardiac arrest
 - Management- Symptomatic and 20% intra lipid emulsion
2. Methemoglobinemia-Prilocaine & Benzocaine
 - EMLA cream – Eutatic mixture of LA- 1:1
Prilocaine: Lignocaine
2.5%:2.5%

Regional Anaesthesia

Definition

- Deposition of local anaesthetic
- Temporarily anaesthetise specific nerve fibres

Types of Regional Anaesthesia

- Field block — Used for dental procedures
- Intravenous Regional Anaesthesia (Bier's Block)

Intravenous Regional Anaesthesia (IVRA)

- Purpose — Minimise toxicity in IVRA
- Medications
 - Lidocaine - Drug of Choice (DOC)
 - Bupivacaine - Contraindicated
- Contraindications
 - Sickle cell disease
 - Peripheral vascular disease
 - Scleroderma

Local Anaesthesia - Mechanism of Action

- Mechanism
 - Acts on Na⁺ channel
 - Blocks inactive closed Na⁺ channel
- Binding — Binds on cytoplasmic site

Local Anaesthetic with Vasoconstrictor

- Adrenaline (1:200,000)
 - Advantages
 - Fast onset
 - Prolonged duration
 - Intense block
 - Decreased systemic toxicity
 - Disadvantages — Pain at site
 - Contraindications — End arteries (Finger block, Toe block, Penile block)

Sensitivity of LA on Nerve Blocker

- Miller's Anaesthesia Order
 - A δ > A γ > A β > A α > B > C
 - Others: B > A δ = C > A γ > A β > A α
 - Order of function: Autonomic > Sensory > Motor

Regional Anaesthesia

Classification of Local Anaesthetics

- Ester
 - Short acting: Cocaine
 - Intermediate acting: Lignocaine, Procaine, Mepivacaine, Chloroprocaine, Prilocaine
 - Long acting: Bupivacaine, Articaine, Ropivacaine, Tetracaine, Dibucaine
- Metabolism
 - Ester LA's: Metabolised by pseudocholinesterase (except cocaine)
 - Amide LA's: Hepatic metabolism

Cocaine

Characteristics

- 1st local anaesthetic
- Sympathomimetic agent
- Increases BP and HR
- Vasoconstrictor

Lignocaine

Properties

- Most common LA
- Can be given IV for analgesia, anti-epileptic, anti-arrhythmic

Dosage

Max safe dose (+ adrenaline): 7 ml/kg BW

Complications of Local Anaesthesia

LAST: Local Anaesthetic Systemic Toxicity

CNS Symptoms

- Apprehension
- Peri-oral numbness
- Tinnitus
- Seizures

CVS Symptoms

- Hypotension
- Arrhythmia
- Cardiac arrest

Management

- Symptomatic treatment
- 20% intra-lipid emulsion

Methemoglobinemia

Associated with

Prilocaine & Benzocaine

EMLA Cream

- Eutectic mixture of LAs (1:1)
- Prilocaine: Lignocaine 2.5%:2.5%