ANESTEZIA LOCOREGIONALA

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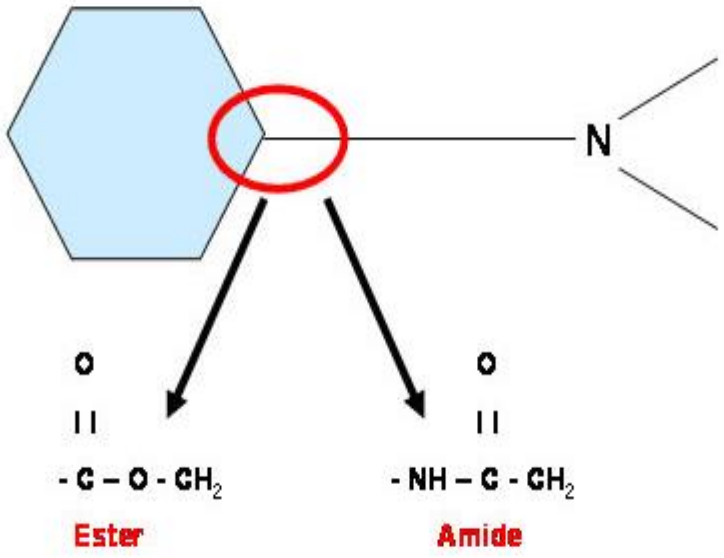
Anesthesia locoregionala

A. Block periferic (21;22;28;29)

B. Spinala & epidurala (35)

Anestezicele locale



Anestezice locale Clasificare

Esters

Contain ester linkage. They are hydrolysed in the body by plasma esterases. They are more likely to produce hypersensitivity reaction

Examples:

- Cocaine,
- Procaine
- Amethocaine
- Tetracaine
- Benzocaine

Anestezice locale
Clasificare

Amides

Contain amide linkage. They are metabolised by amidases in liver. Hypersensitivity reaction to amides are very rare.

Examples:

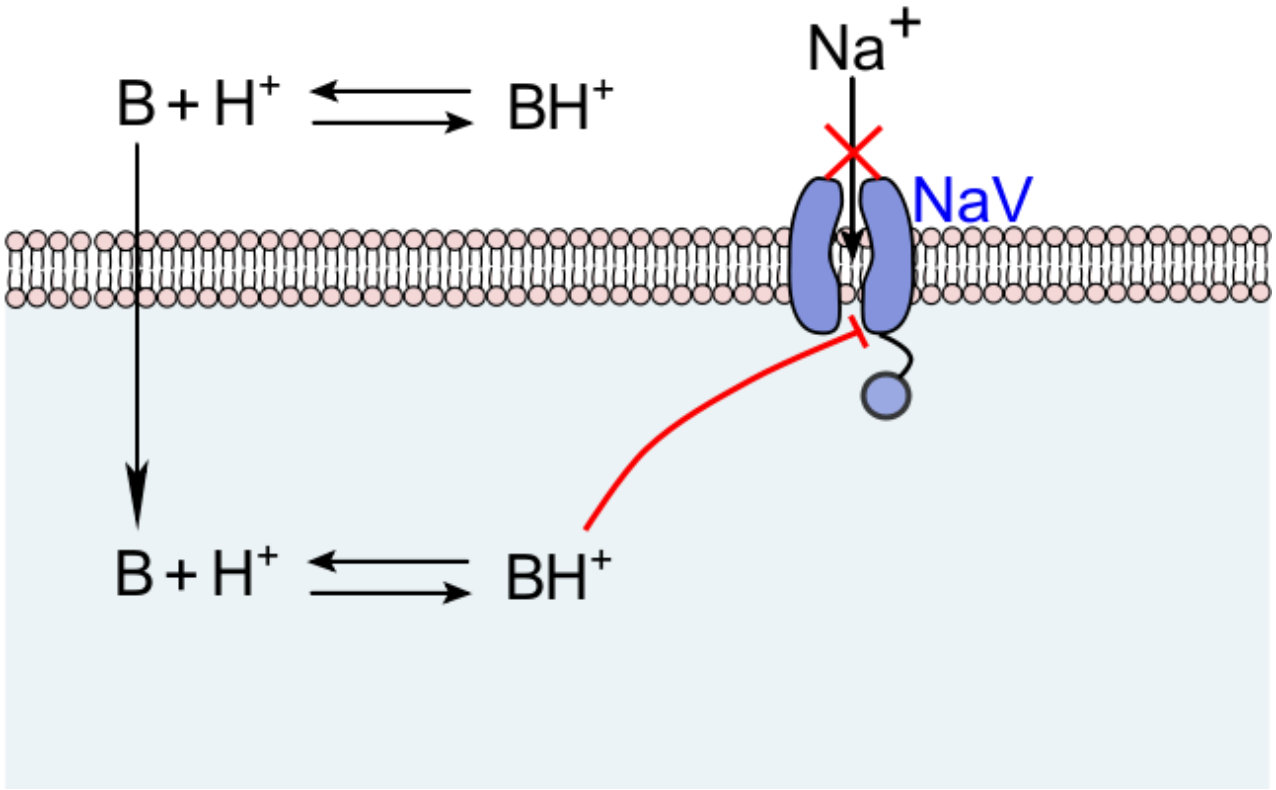
- Lidocaine
- Lignocaine,
- Prilocaine,
- Bupivacaine
- Ropivacaine.

Anestezice locale

Drug	Concen-tration (%)	Clinical Uses	Maximum Dose (mg)	Potency (units)**	Toxicity (units)**	Onset Latency (minutes)	Duration of action (hours)
Procaine (Novocaine)	0,25 – 0,5	Infiltration PNB Epidural Spinal	180 – 600-1400*	1	1	8-15	0,5 – 1,5*
Lidocaine	0,25 - 5	Topical Infiltration PNB Epidural Spinal	100 – 600*	3 - 5	1,5	5 - 10	0.5 - 4
Ropivacaine	0,75 - 1	Infiltration PNB Epidural	200 - 300	6 - 7	1	10 - 20	2 - 10
Bupivacaine	0.25 – 0,75	Infiltration PNB Epidural Spinal	25 – 200*	7 - 8	2	5 - 20	2-9
Levobupivacaine	0,25 – 0,5	Epidural Spinal	25 - 150	7	2	15 - 20	3 - 9
Mepivacaine	0,25 - 4	Infiltration Epidural Spinal	100–600*	3 -5	1 – 1,5	5 - 10	1 – 1,5

*- with Epinephrine 1:200000; **- compared with Procaine = 1 unit; PNB – peripheral nerve block

Anestezice locale
Mecanism de actiune



Anestezicele locale

Local Anesthetics (LA)

- Provide anesthesia and analgesia by disrupting the conduction of impulses along nerve fibers
- LAs block voltage-gated sodium channels
- Reversibly bind intracellular alpha subunit
- Inhibit the influx of sodium, thus preventing an action potential from being reached
- LAs are less effective in inflammation because of impaired dissociation and delayed penetration trough cellular membrane

Anestezice locale
Utilizare clinica

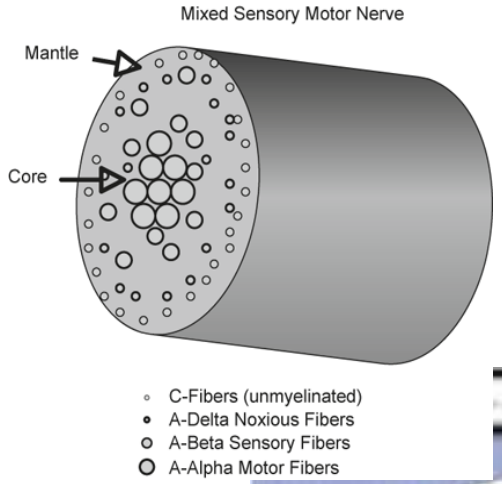
Clinical Usage

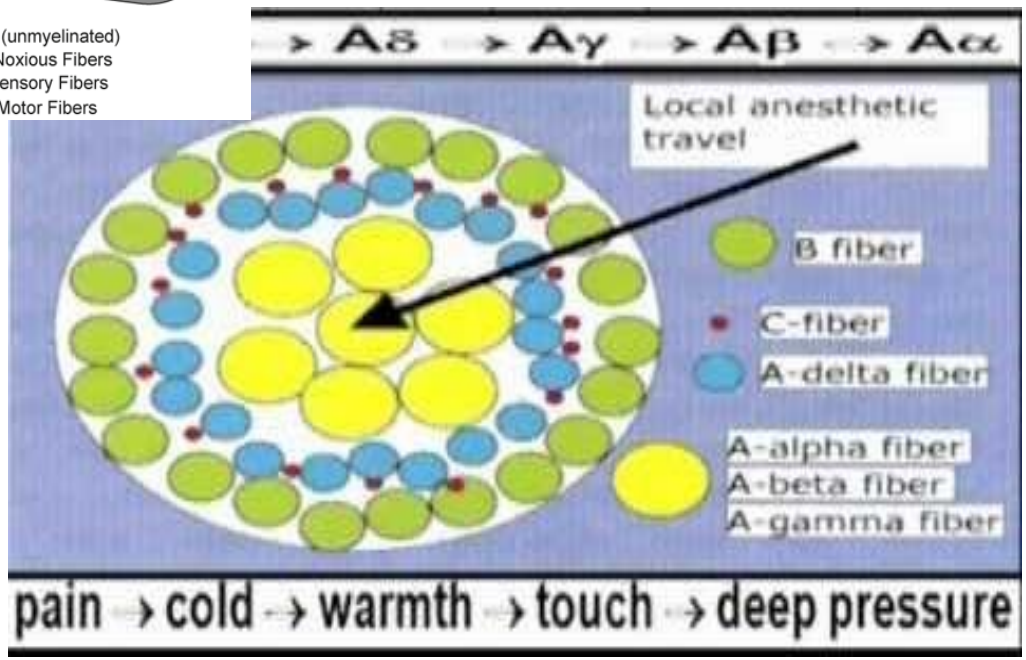
Provide anesthesia and analgesia throughseveral routes of delivery

- Topical
- Infiltration
- IV
- Epidural
- Intrathecal (Spinal)
- Perineural (Regional)

Differential Block : Small diameter (A delta) and myelinated nerves are most susceptible, thus sensory loss precedes motor weakness

AL: Blocul diferential





Anestezice locale
Utilizare clinica

Effects of Epinephrine Added to the LA Solution:

- Prolongs duration of anesthesia
- Reduces systemic absorbtion
- Increases intencity of blockade
- Reduces surgical bleeding
- Signals intravascular injection
- Decreases the latency to onset of anesthesia

Factors influencing LA tissue uptake (absorbtion):

- Anesthetic concentration
- Tissue blood flow (vascularisation)
- **LA** Tissue solubility

Anestezice locale
Utilizare clinica: toxicitate

LA Toxicity

- **CNS toxicity**

· Local anesthetics readily cross the blood brain barrier

· Clinical manifestations: Lightheadedness, tinnitus, tongue numbness > CNS depression, seizure > coma

- **Cardiovascular toxicity**

· Dose dependent blockade of Na channels > disruptions of cardiac conduction system > bradycardia, ventricular dysrhythmias, decreased contractility, cardiovascular collapse/ circulatory arrest

· Bupivacaine especially has severe CV side effects

· Approximately 3x the amount of local anesthetics are required to produce cardiovascular toxicity than CNS toxicity

· Addition of Epinephrine allows for early detection of intravascular injection and also increases the max allowable dose

Anestezice locale
Utilizare clinica: toxicitate

Treatment of LA toxicity

- **Initial management:**

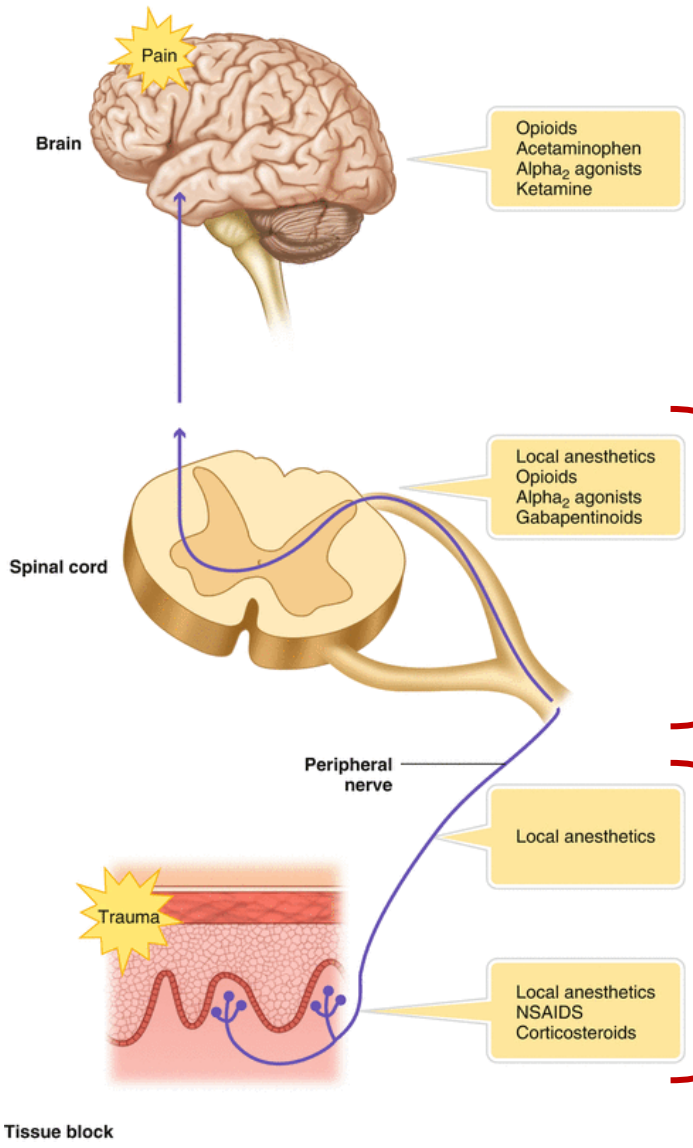
- Stop local anesthetic
- Give ***benzodiazepines for seizure***, avoid propofol when there are signs of CV instability.
- Begin ACLS: CPR, securing airway.
- Reducing individual epinephrine doses to <1 mcg/kg.

AVOID: vasopressin, Ca channel blockers, Beta blockers, and local anesthetics

- **Initiate early intralipid (IL) therapy**

- Bolus IL 20% 1.5 ml/kg, followed by infusion of 0.25 ml/kg/min
- May repeat loading doses (max 3 total doses)
- May increase infusion rate to 0.5 ml/kg/min if BP is still low. Not to exceed 10 ml/kg in the first 30 mins.
- Consider early initiation of cardiopulmonary bypass

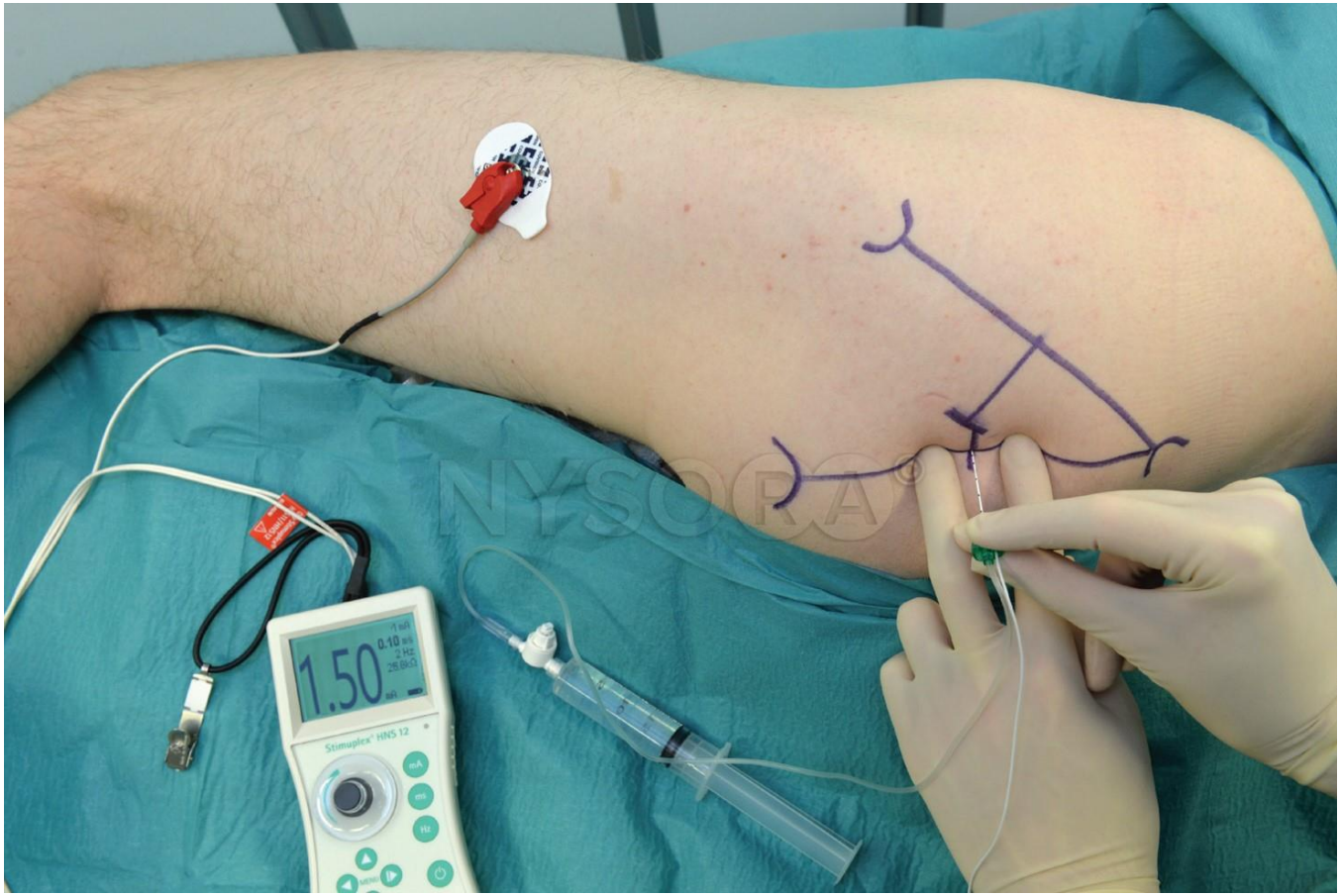
Anestezia locoregionala



Anestzie regionala

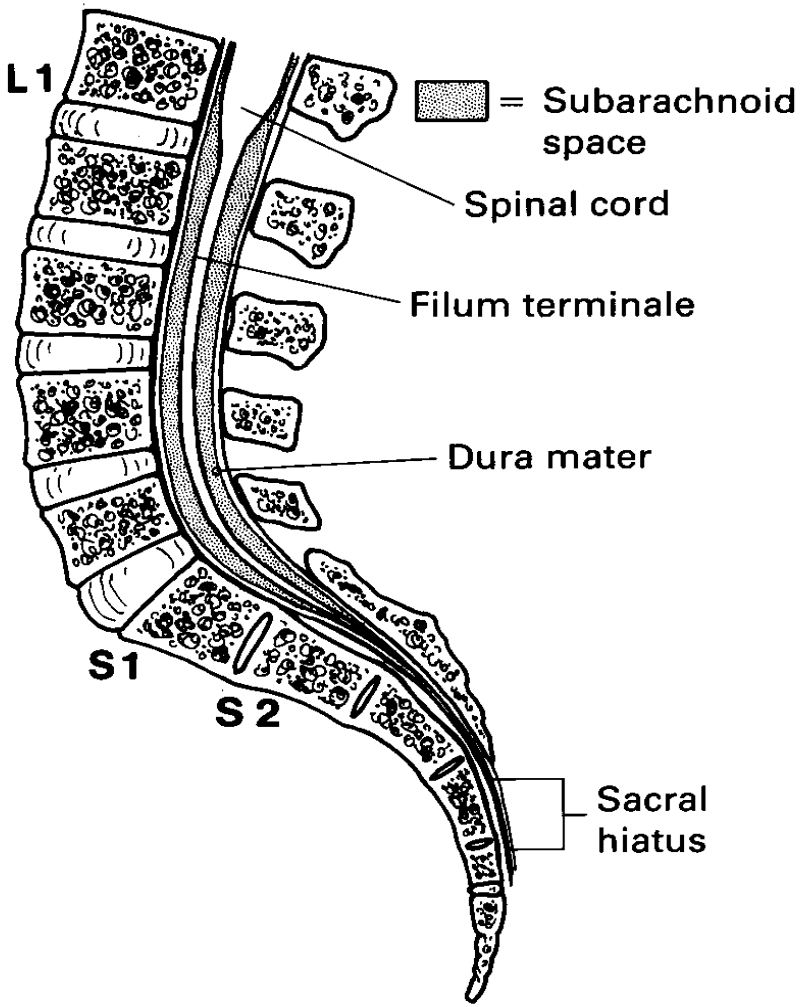
Anestezie locala

Anestezia locoregionala
Blocul nervului sciatic

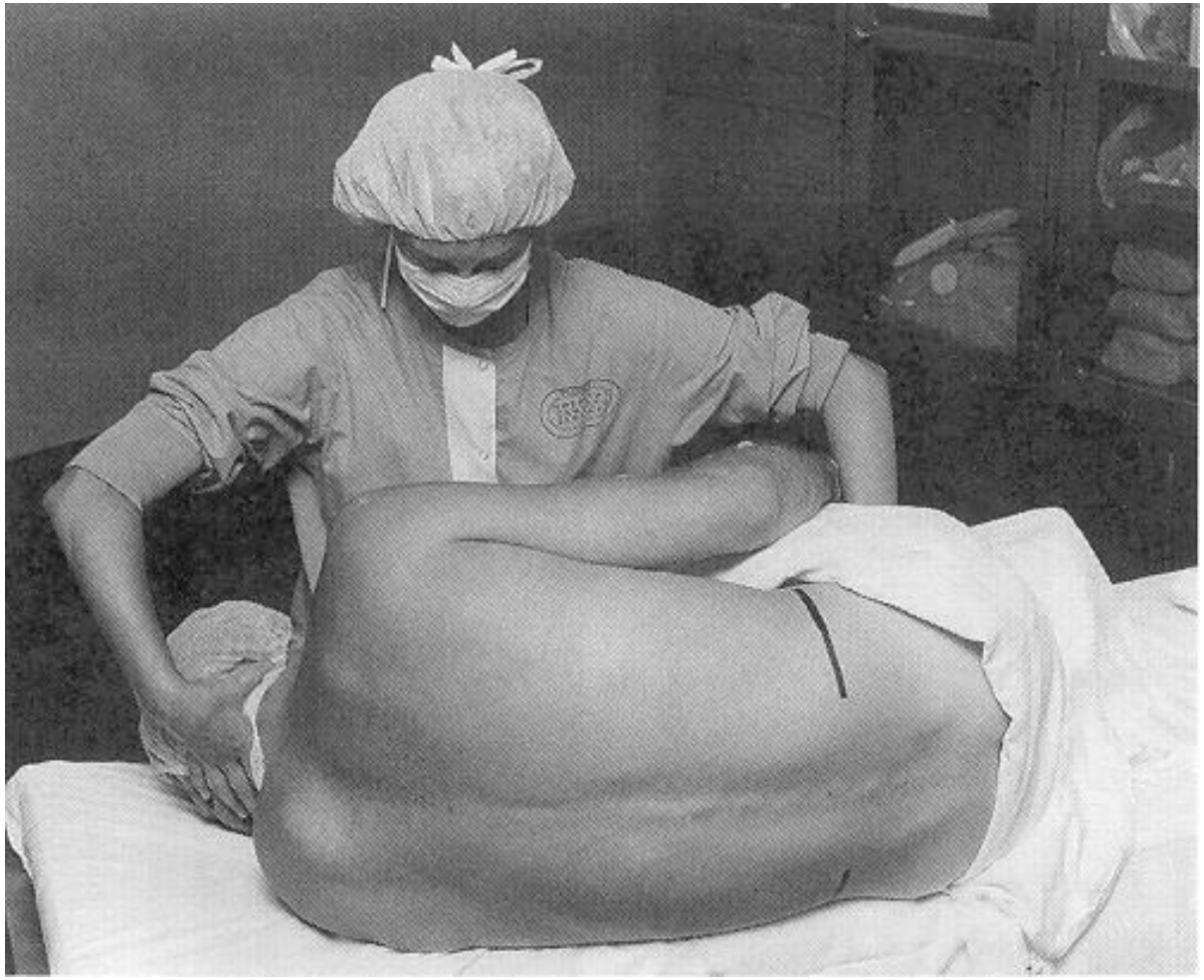


Anestezia locoregionala
Blocul de plex brachial

Anestezia Spinala & Epidurala
Aspecte anatomice (6;31;32)



Anestezia Spinala & Epidurala
Pozitionarea pacientului (6;31;32)



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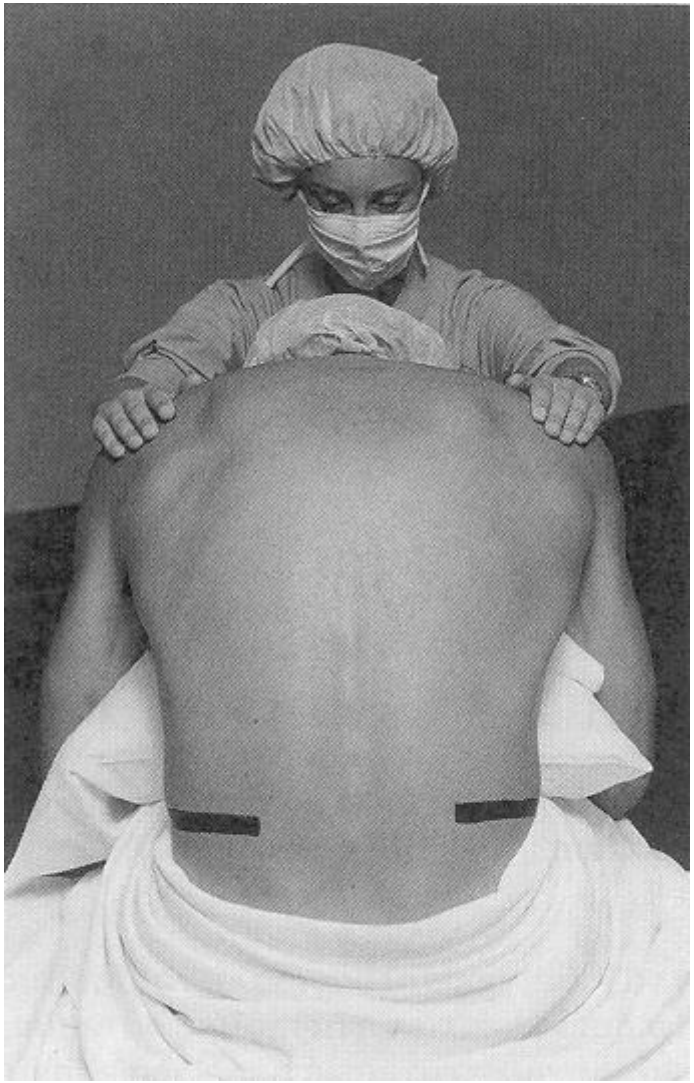
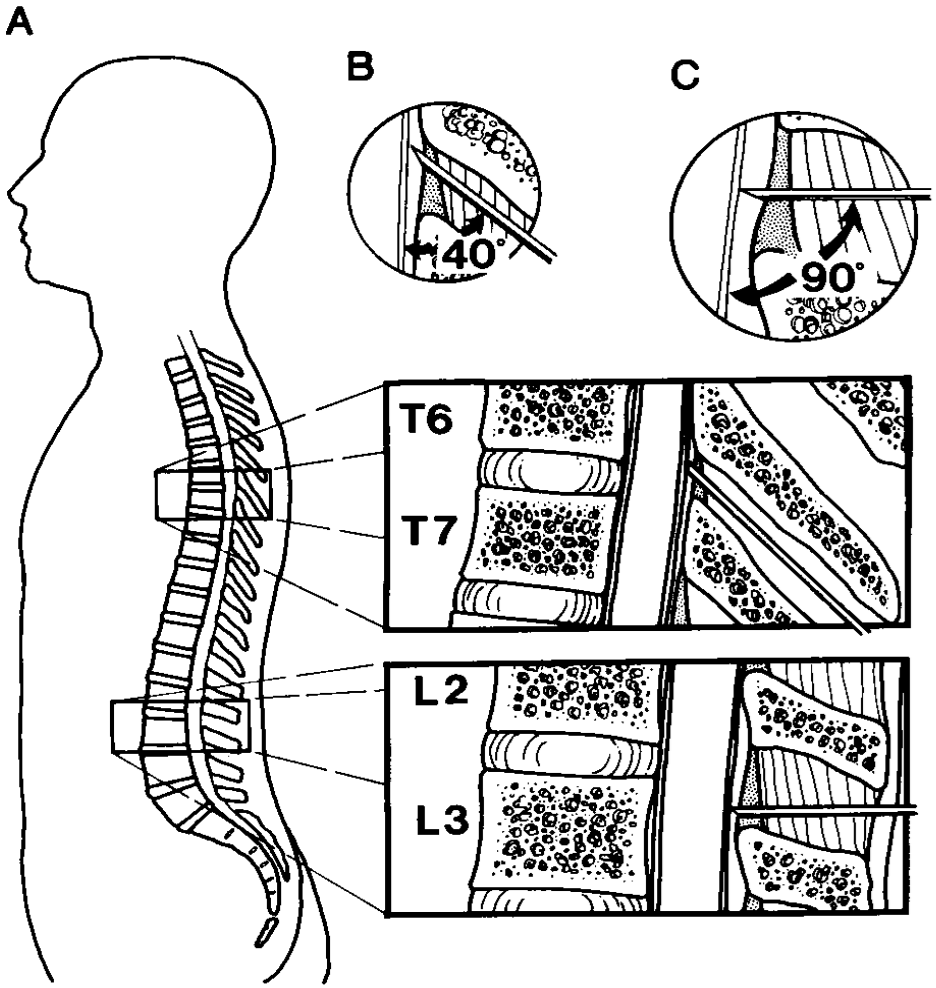
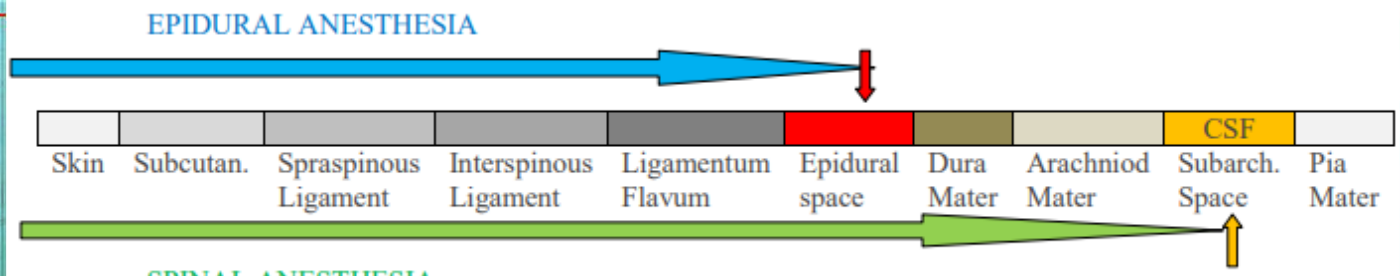
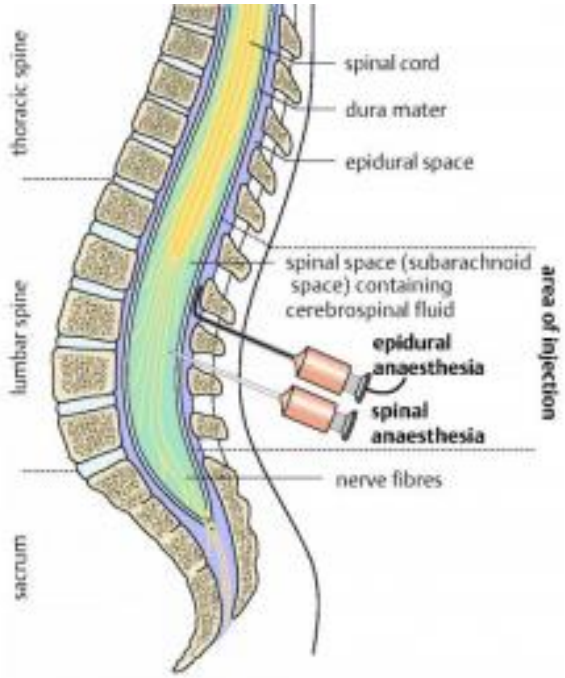


Anestezia Spinala & Epidurala
Aspecte anatomice (6;31;32)

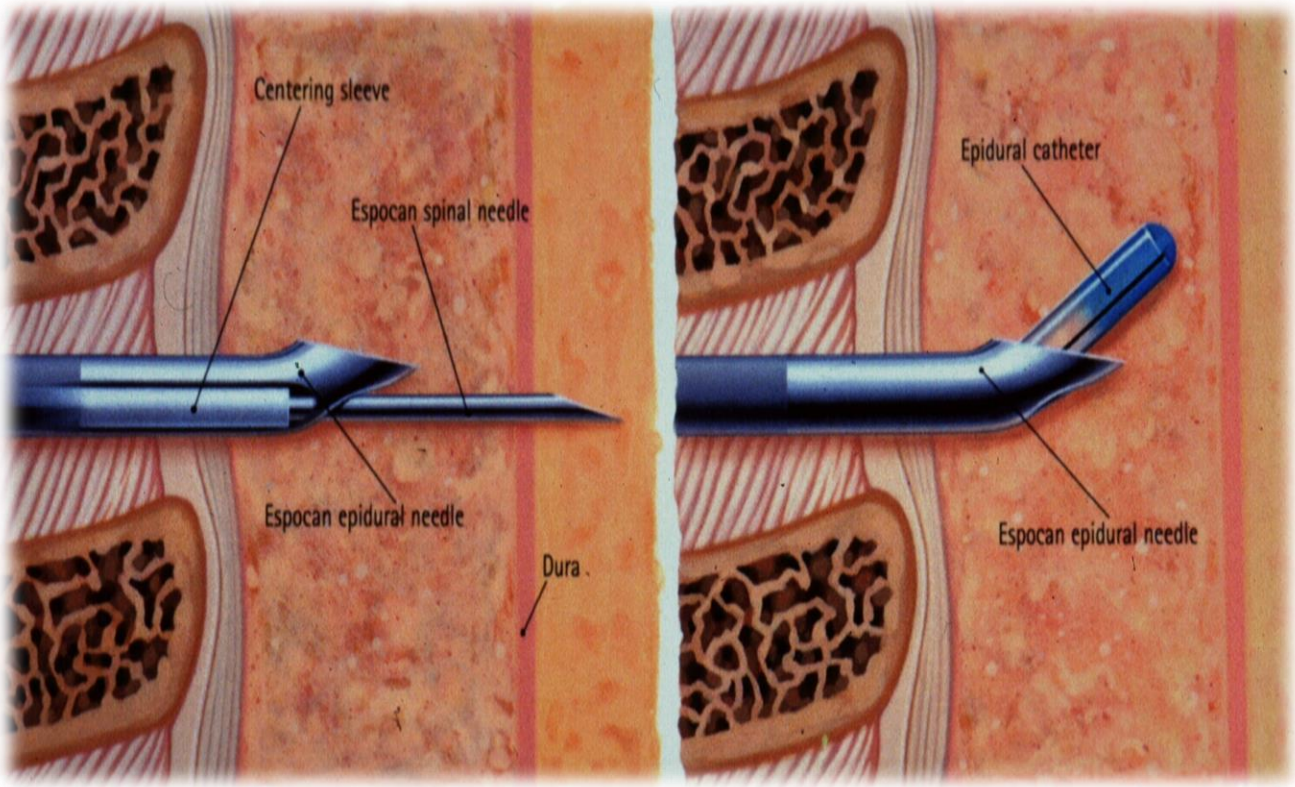


Anestezia Spinala & Epidurala





Anestezia Spinal - Epidurala



Anestezia locoregionala: cu sau fara sedare?

- Pacientul sub anestezie generala sau sedare profunda nu este in stare sa raporteze parestezia, injectarea intraneurala care pot preceda trauma/leziunea nervoasa
- Anestezia locoregionala la pacientul pediatric este aproape in exclusivitate realizata sub anestezie generala
- Majoritatea tehnicilor locoregionale pot fi applicate la pacient adult in stare de veghe sau cu sedare usoara cu discomfort minim
- Contactul verbal continuu cu pacientul are avantaje distincte in privinta detectarii paresteziei, injectarii intratecale sau intraneurale cu dublu beneficiu: pentru diagnostic si management

NB: Aplicati ALR pe pacient in satre de veghe cand este posibil. Dozarea adecvata a analgezicului/sedativului (ex. Fentanyl 50-100 mcg + midazolam 1-2 mg) va augmenta esential toleranta procedurii

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