



ADVANCED WOUND MANAGEMENT

SUTURING #2: Anesthesia & Equipment



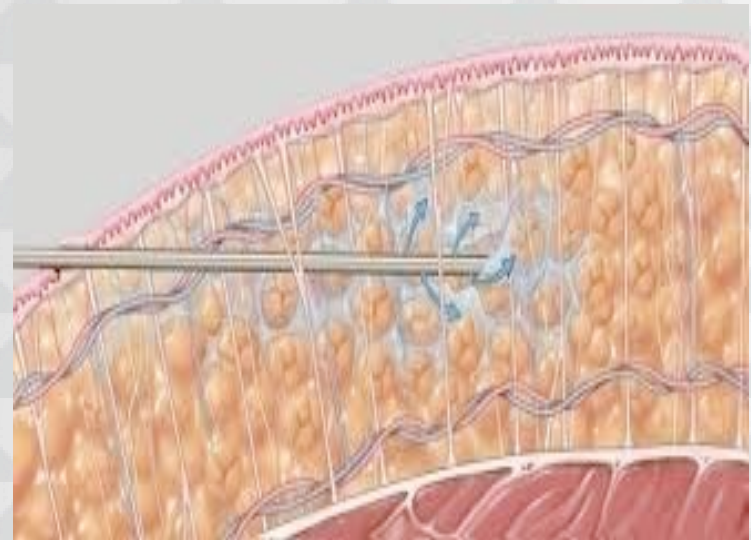
OBJECTIVES

- Understand pharmacological principles of anesthetics used for wound management
- State implications for use of local anesthetics lidocaine and epinephrine in wound management
- Describe proper wound infiltration with local anesthesia
- Describe suture material selection with rationale



Pharmacology of Local Anesthetics

- Diffuses across the neural sheath & membrane
 - Interferes with neural depolarization & blocks impulse transmission
- Pain fibers: thin/unmyelinated
 - Lido 1% easily blocks these fibers
- Pressure fibers: thicker/myelinated
 - Lido 2% blocks these fibers
 - Consider for child & apprehensive adult

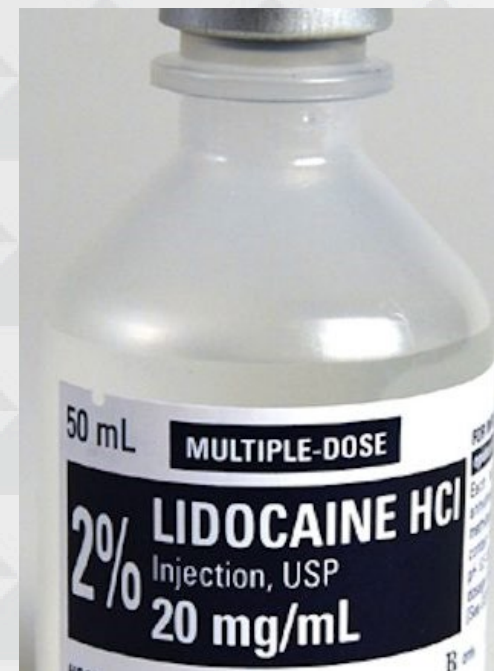




Pharmacology of Local Anesthetics

AMIDES

- Lidocaine (xyelocaine)
 - Duration 30-120 min; max dose 300 mg or 4.5mg/kg (with epi 500 mg or 7mg/kg)
 - Children 4mg/kg plain; 7 mg/kg lido 1% with epi
- Bupivacaine (marcaine)
 - Duration 4-8 hours; max dose 175 mg (with epi 250 mg)





Pharmacology of Local Anesthetics

- Epinephrine Use in Local Anesthesia
 - ADVANTAGES: vasoconstriction, decrease bleeding & toxicity
 - DISADVANTAGES: increases cardiac irritability, B/P, allergic reaction & tissue ischemia
- NEVER use EPI on PENIS, NOSE or EARS. Caution use on areas of potential vascular compromise



Toxicology & Local Anesthetics

- CV Reactions
 - Caused by inadvertent IV injections or OD
 - Hypotension & Bradycardia, symptomatic tx
- CNS Excitatory Effects
 - Caused by inadvertent IV injections or OD
 - Seizure activity, symptomatic tx
- Vasovagal Reaction
 - Secondary to Anxiety & Pain
- The PATIENT SHOULD ALWAYS BE SUPINE!!!!



Anesthetic Allergies

- True Allergies < 1%
 - Usually to Esthers-Novocaine, Tetracaine
- Attempt to identify actual response
 - Epi can cause anxiety
 - Commonly used in dental procedures
- Treat allergic reactions in the standard manner
 - Airway, IV (Benadryl, Pepcid, Solumedrol)
 - SubQ Epi especially if angioedema, hypotension, or wheezing



Anesthetic Allergies

BOX 1 *Manifestations of Systemic Toxicity*

Minor (Associated With Low Plasma Levels)

- Perioral numbness
- Facial tingling
- Restlessness
- Tinnitus
- Metallic taste
- Vertigo
- Slurred speech

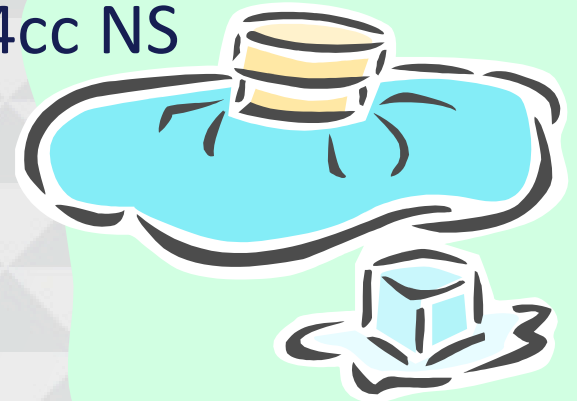
Major (Associated With High Plasma Levels)

- Sudden loss of consciousness
- Tonic-clonic seizures
- Cardiovascular collapse
- Cardiac arrest



Alternative Anesthesia Techniques

- No local in small wounds
- Infiltrate NS in small wounds
- Gentle ice massage over small wounds
- Preservative free preparations
- Infiltrate with 1% Benadryl solution
 - Mix 1cc Benadryl (50mg/cc) & 4cc NS





Decreasing the Pain of Infiltration

- Buffering
 - Add 1cc of Na Bicarb to 9cc of Lido to ↑ pH of solution from 6.49 to 7.38
- Topical
 - Ice massage over area pre-injection
 - Lidocaine soaked cotton balls in wound
 - Ethyl Chloride over site pre-injection
 - EMLA cream
 - L.E.T/T.A.C



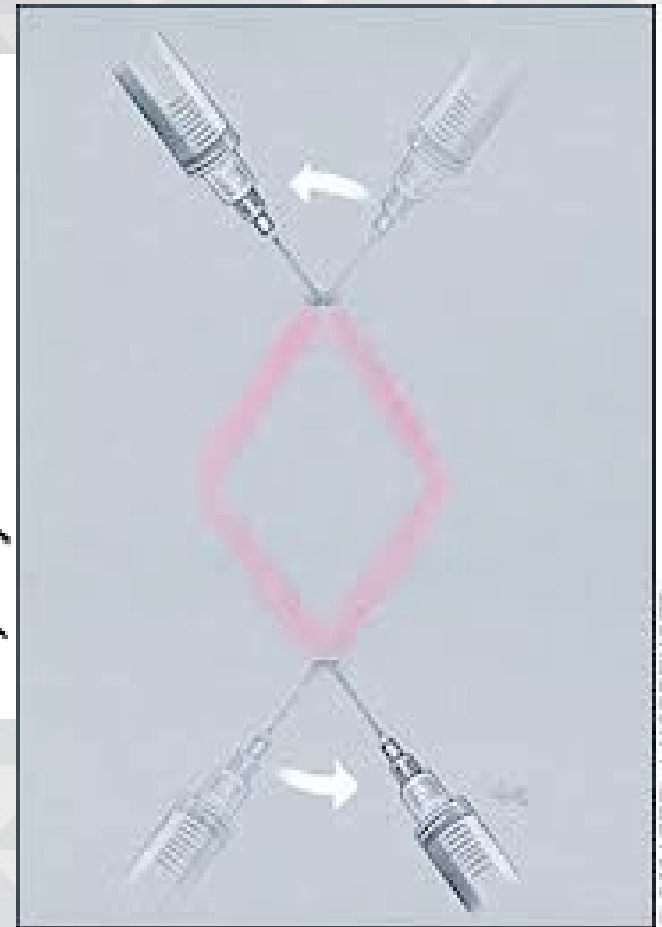
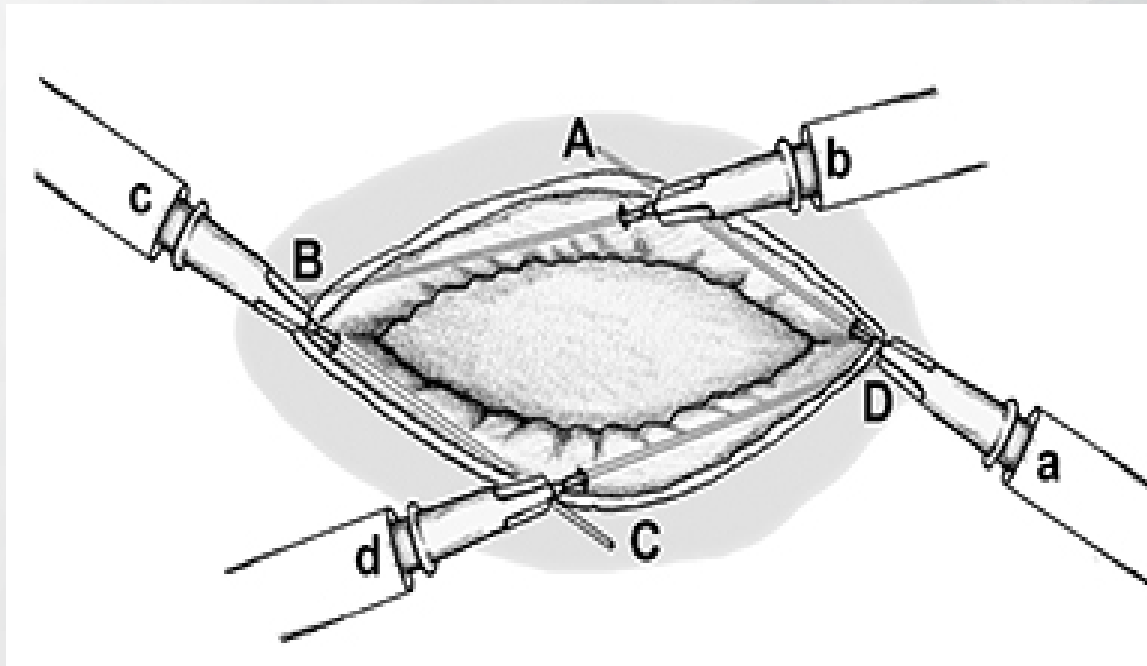


Wound Infiltration Methods

- ***Packing/Topical:*** no needle but soaked gauze/cotton balls packing also tamponades small vessels without distorting tissue, usually 2% lidocaine
- ***Local Infiltration:*** use 25 g or 27 g needle to inject slowly into wound edges, inject evenly as needle is withdrawn, extra attn. to wound ends
- ***Peripheral Nerve Block:*** also known as digital block of fingers and toes



Local Wound Infiltration Techniques





Coding for Local Anesthesia

- CPT Codes
 - 01460 Anesthesia for all procedures on integumentary system of lower leg, ankle and foot
 - 01800 Anesthesia for all procedures on integumentary system of forearm, wrist and hand



SUTURING MATERIALS





Suturing Materials



- Proper lighting
- Patient and clinician comfort
- Properly selected anesthetic approach with syringes and infiltration needles
- Suture Kit
 - Contents: STERILE Needle drivers, tissue forceps, scissors, gauze
- Sterile gloves
- Normal saline, betadine, phisohex, or other wound cleansing substance
- Suturing material dropped onto sterile field



Suture Selection



- Suture is numbered by the “O”s, the finer the more zero’s used
- Finer suture leaves less scar
- Choose finest suture possible for the job
 - Face: 6-0
 - Hands & Feet: 5-0, 4-0
 - Extremities & Trunk 3-0, 4-0
- Knot is the weakest point
- Needle size is always shown on package, most common are large and small
- Most common contour is 3/8 circle and ½ circle
- Nonabsorbable is used for superficial lacerations
 - Ethilon: monofilament nylon
 - < infection risk
 - Some memory
 - Some stretch
- Absorbable is used for SQ, mucosal, episiotomies, under casts, lacs in abrasion
 - Vicryl
 - Chromic Gut: 7-10 day



Remember!

- Understand the pharmacology and potential reactions of any drug you administer and be prepared for adverse reactions
- Always assess health history, medications, allergies and drug sensitivities before administration
- Always assess neurovascular status and function **before and after** infiltration
- Never infiltrate something pulsatile
- Avoid accidental I.V. route
- Avoid areas of erythema or infection