

Local Anesthesia: Local and Systemic Complications

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Prior to Treatment

- complete review of medical status
- vital signs
- anxiety / fear should be assessed and managed before administering anesthetic

Drug Actions

- all drugs produce multiple effects
 - ◆ desired
 - ◆ undesired

General Principles

- no drug exerts a single action
- no drug is non-toxic
- potential toxicity is user dependent

Administration of Anesthesia

- place patient supine or semi-supine position
- dry site, apply topical x 1 minute
- select appropriate drug for treatment (time)
- vasoconstrictor unless contraindicated
- weakest anesthetic in the minimum volume
- inject slowly (minimum of 60 sec / 1.8 ml)
- continually observe - never leave patient alone after injection

Dosage

- Dosage should be based on
 - ◆ age
 - ◆ weight
 - ◆ physical status

Complications

- Syncope
 - Trendelenburg position
 - pregnancy – left lateral decubitus position
 - assess consciousness ABC of CPR
 - most patients regain consciousness quickly
 - monitor vitals (HR, BP, RR)
 - if recovery takes >20 minutes or if LOC is > 1 minute activate EMS

Muscle Trismus

- most common – post injection pain
- excessive volume of LA
- hemorrhage
- barbed needles – 60% of needles used for IANB (inferior alveolar nerve block) came out barbed after coming into contact with mandible

Muscle Trismus

- Management
 - ◆ examination
 - ◆ conservative therapy
 - passive ROM therapy
 - Analgesics (NSAID's)
 - heat
 - muscle relaxants

Pain

- rapidity of injection
- dull needle from multiple reinjecting
- solutions cold/warm

Edema

- trauma during injection
- infection
- hemorrhage
- angioedema – CAN BE LIFE THREATENING

Infection

- very rare occurrence due to disposable needles
- injecting through an infected area (seeding the infection)

Broken Needles

- REMAIN CALM
- primary cause: sudden movement of patient
- previously bent needles
- smaller gauge needles ie 30 ga.
- refer to OMFS for consultation



Hematoma

- ◆ nicking an artery during injection
- ◆ usually seen after PSA or IANB
- ◆ may be seen intraoral or extraoral
- ◆ management – direct pressure at first evidence of hematoma

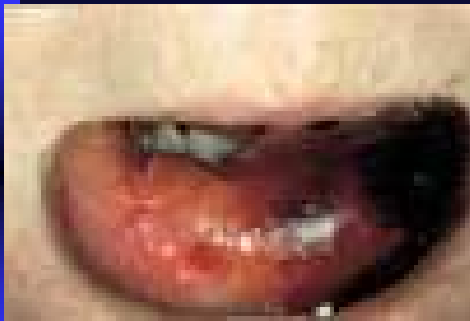


Lip Chewing

- seen in
 - ◆ children
 - ◆ mentally retarded/developmentally delayed
 - ◆ cerebral palsy and other motor disorders

Lip Chewing

- avoid problem with
 - ◆ sticker on patient's forehead
 - ◆ use of shorter acting agents
 - ◆ educate parent/significant other/health care aide
 - ◆ may have to consider general anesthesia



Persistent Anesthesia/Paresthesia

- trauma to nerve sheath, patient reports feeling "electric shock"
- trauma to nerve – hemorrhage into/around nerve sheath can > pressure on nerve
- REMEMBER MAINTAIN CALM
- have patient return for exam and carefully examine and document
- most cases resolve within 6 – 8 weeks

Facial Nerve Paralysis

- local anesthesia is deposited into deep lobe of parotid gland
- remove contact lens of affected eye
- tape eye closed
- document in chart
- call patient in few hours

Post anesthetic intraoral lesions

- occasionally seen 2 days post injection.
- usually is recurrent aphthous stomatitis.
- rarely is viral ie. Herpes simplex

Toxic Overdose

- peri-oral itching/numbness
- light headedness
- tinnitus
- dizziness
- drowsiness
- disorientation
- slurred speech
- twitching of muscles
- EKG changes

Toxic Blood Levels: Causes

- amount of drug used
- intravascular injection
- unusually slow biotransformation /elimination (pseudocholinesterase levels)

CARDIOVASCULAR EFFECTS- LIDOCAINE

Micrograms/ml Lidocaine	EKG CHANGES	HEMODYNAMIC EFFECTS
< 5	none	none
5 - 10	>P-R interval >QRS duration >Sinus bradycardia	< myocardial contraction < cardiac output > Vasodilation
>10	Above and AV Block Asystole	Above and Circulatory collapse

Allergy to Local Anesthetics

- if patient gives history of allergy to local anesthetics one must assume an allergy exists
- ask for copy of allergist report or refer patient to allergist
- postpone treatment until workup is completed

Management of Allergic Patients

- no invasive treatment
 - ◆ analgesics/antibiotics
- general anesthesia
- histamine blocker (Benadryl)
- Other
 - ◆ electronic anesthesia
 - ◆ Hypnosis
 - ◆ nitrous oxide

Allergens in Local Anesthesia

- Sodium bisulfite or metabisulfite
 - ◆ preservative for vasoconstrictor
- Methylparaben – no longer used in dental cartridges but used in multi-use vials

Allergy signs/symptoms

- Skin
 - ◆ Minor rash
 - ◆ angioedema
- Respiratory
 - ◆ wheezing
 - ◆ laryngeal edema
 - ◆ tachycardia

Allergic/Anaphylactic Reactions

- Allergic
 - ◆ Benadryl and refer to private MD for allergy workup
- Anaphylactic
 - ◆ epi-pen
 - ◆ maintain ABC of BLS and activate EMS

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