Local anesthetics provide a reversible regional loss of sensation. Local anesthetics reduce pain, thereby facilitating dental procedures. Delivery techniques broaden the clinical applicability of local anesthetics. These techniques include topical anesthesia, infiltrative anesthesia, ring blocks, and peripheral nerve blocks.

Local anesthetics are safer than general or systemic anesthetics; therefore, they are used whenever possible. In addition, they are relatively easy to administer and readily available. Local anesthetics have been undergoing development for centuries, and research continues to provide clinicians with pharmacologic variety and to provide patients with anesthetic agents that have superior safety and efficacy profiles.
Head and Neck Anatomy

A. Muscles of Mastication

B. Muscles of Facial Expression

C. Facial Spaces

D. Trigeminal Nerve and Associated Vasculature

Anatomic considerations, clinical application and supplemental injection techniques

1. Discuss the following types of administration of anesthetic:
   a. Maxillary anesthesia
   b. Mandibular anesthesia
   c. Gow-Gates
   d. Akinosi
   e. PDL
   f. Interosseous
   g. Electronic
   h. Controlled delivery devices

2. Discuss the causes, problems, prevention and management of the following local complications:
   a. Needle breakage
   b. Pain on injection
   c. Persistent anesthesia: paresthesia
   d. Trismus
   e. Hematoma
   f. Infection
   g. Tissue sloughing
   i. Lip chewing j. Facial nerve paralysis
   k. Intravascular injection
3. Discuss the causes, problems, prevention and management of the following systemic complications:

   a. Local anesthetic overdose
   b. Epinephrine overdose
   d. Idiosyncratic reaction
   e. Side effects

**Objectives and Goals**

- **Learning Objectives**
- Describe the skeletal landmarks of the maxilla and mandible that relate to local anesthesia.
- Integrate an understanding of the skeletal system into the clinical practice of providing local anesthesia.
- Trace the routes of the blood vessels of the head and neck.
• Identify the routes of the cranial nerves and nerves to the oral cavity.
• Describe tissue innervated by the nerves associated with local anesthesia.
• Integrate an understanding of head and neck nerves into the clinical practice of providing local anesthesia.
• Describe the applied anatomy of the pterygomandibular space as it applies to local anesthesia of the alveolar nerve.
• Describe the proper administration technique of the inferior alveolar, Gow-Gates, Akinosi, posterior superior alveolar and maxillary second division nerve blocks.
• Describe the pharmacologic action of common local anesthetics, vasoconstrictors and preservatives and know their indications and contraindications in patient treatment.
• Recognize and treat adverse reactions to local anesthetics, vasoconstrictors and preservatives.
• Describe the techniques, physiologic response and postoperative sequelae of intrapulpal, intraseptal and periodontal ligament injections.

References


