Local Anesthesia

Local anesthesia is a way to numb a specific area of the body so that a medical procedure can be done without causing pain. Some operations, many dental procedures, and different types of diagnostic tests can be done using local anesthesia alone. Local anesthesia medications do not make a person sedated or produce unconsciousness. However, sedation, in which individuals are given medications to make them comfortable and to block memory, is often given along with local anesthesia for many types of procedures. Using local anesthesia alone avoids the side effects of sedation medications and medications used to produce **general anesthesia** (making an individual unconscious for a procedure). Local anesthetic solutions often provide long-lasting pain relief to the area where they have been applied. Many operations, such as **appendectomy** (removal of the appendix), **cholecystectomy** (removal of the gallbladder), and open heart surgery, require general anesthesia. Other procedures, including some orthopedic surgery, urological surgery, and female reproductive surgery (including most cesarean deliveries), can be done after a person is given **regional anesthesia** (such as spinal anesthesia or epidural anesthesia).

TYPES OF LOCAL ANESTHESIA

- **Topical anesthesia** places or sprays a solution on the skin or a mucous membrane (such as the mouth, gums, eardrum, inside of the nose, surface of the eye, anus, or vagina). The anesthetic is absorbed where it is applied. Sometimes topical local anesthesia is all that is needed for a procedure, but it can also be part of a combination of other anesthetic techniques.
- Local anesthetic injection, using a needle, numbs skin and the tissue that lies underneath. The local anesthetic medication spreads around the area, depending on the amount of medication injected.
- Irrigation with local anesthetic solution, using a syringe, a catheter, or another type of device, bathes the surrounding area and tissues. This is usually done as part of a surgical procedure or a pain management technique. **Epidural analgesia**, such as is used to relieve the pain of labor and childbirth, is a catheter-based way of giving local anesthesia medication that bathes selected nerves near the spinal cord.

COMMON PROCEDURES DONE WITH LOCAL ANESTHESIA

- Dental work, including fillings, crowns, root canals, and tooth **extractions** (removal)
- **Biopsies** (surgical samples) and **excision** (surgical removal) of cysts, **lipomas** (small fatty growths), and tumors (benign or cancerous). Minor surgery on "lumps and bumps" is often done using local anesthesia alone.
- Podiatry operations, such as bunionectomy and hammertoe repair
- Cataract removal
- **Cystoscopy** (examination of the bladder using a flexible tube inserted through the urethra)
- Inguinal hernia repair, although some hernias are too complex to be repaired using local anesthesia alone
- Insertion of intravenous devices, such as pacemakers and implantable defibrillators, ports used for giving chemotherapy medications, and hemodialysis access catheters
- Diagnostic tests, such as bone marrow aspiration, **lumbar puncture** (spinal tap), and **aspiration** (sampling through a needle) of cysts or other structures, can be made less painful when local anesthetic is applied before the insertion of larger needles required for these tests.

FOR MORE INFORMATION

- American Society of Anesthesiologists www.asahq.org
- American Society of Regional Anesthesia and Pain Medicine www.asra.com
- American Dental Association www.ada.org

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To find this and previous JAMA Patient Pages, go to the Patient Page Index on *JAMA*'s Web site at www.jama.com. Many are available in English and Spanish. A Patient Page on general anesthesia was published in the March 9, 2011, issue; one on regional anesthesia was published in the August 17, 2011, issue; one on cesarean delivery was published in the May 22/29, 2002, issue; and one on pain management was published in the November 12, 2003, issue.

Sources: American Society of Anesthesiologists, American Society of Regional Anesthesia and Pain Medicine, American Dental Association

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