The Use of Anesthetics for IV Starts

Columbus State University

Purpose

- **Patient advocates:**

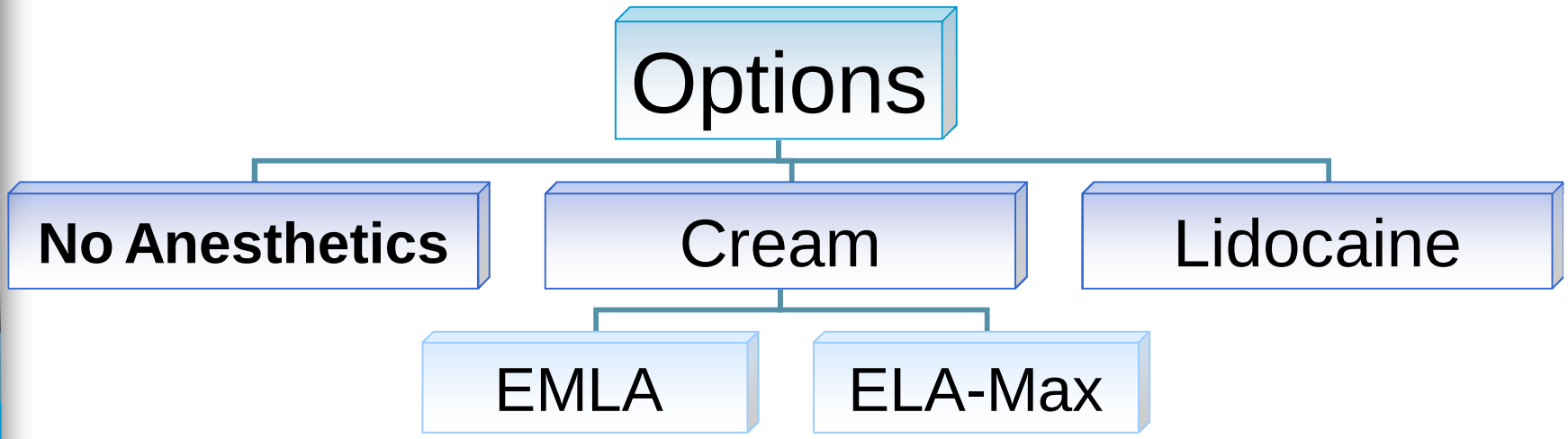
- Strive to provide the utmost comfort for patients

- **Purpose:**

- To determine if the use of local anesthetics reduces the pain and discomfort of patients during venous catheterization

Clinical Question

- **Should hospital patients receive local anesthetics prior to intravenous catheterization rather than no local anesthetics as a measure to reduce pain?**


Options
No Anesthetics
Cream
Lidocaine
EMLA
ELA-Max

No Local Anesthetics

It is the patient's option to choose whether they would like to have local anesthetics

Creams

EMLA Cream

ELA-Max

EMLA Cream

- **Made of a 1:1 combination of 2.5% Lidocaine and 2.5% Prilocaine**
- **Applied topically to the intended IV site and covered with an occlusive dressing**
- **The recommended dose is 2.5 g**
- **It is also recommended that you give it 45-60 minutes to take full effect; however, some research has found that it can take partial effect and IV pain can be reduced in as little as 5 minutes**

EMLA Cream

- **Patients taking drugs that induce the production of methemoglobin (such as Sulfonamides, Acetaminophen, and Phenobarbital) should be aware that it can cause methemoglobinemia**
- **It is also contraindicated for patients allergic to Lidocaine, Prilocaine, or other topical anesthetics**

ELA-Max

- **Each gram of ELA-Max contains 40 mg of Lidocaine, lecithin, propylene glycol, carbomer 940, benzyl alcohol, vitamin E acetate, cholesterol, triethanolalmine, polysorbate 80, and purified water**
- **Reaches maximum effect in 30 minutes**
- **It does not contain Prilocaine so there is no risk of methemoglobinemia**
- **ELA-Max applied for 30 minutes is as effective as EMLA cream applied for 60 minutes in preventing pain during IV insertion**
- **Cost of ELA-Max and EMLA Cream is approximately the same**

Kleiber. Topical Anesthetics for Intravenous Insertion in Children: A Randomized Equivalency Study. October 2002.

Lidocaine

- **Recommended dose is 0.1-0.5 mL of 1% Lidocaine**
- **Using a 25-29 gauge needle, inject the Lidocaine into the intra-dermal tissue lateral and distal to the intended IV insertion site to prevent fluid from obscuring the IV site**
- **Onset is rapid and IV can be inserted in 30 seconds**
- **A downside is that it causes pain**

Lidocaine

- **The pain of the Lidocaine injection is significantly less than the reported pain of the IV insertion without Lidocaine**
- **When given the option for use of Lidocaine before IV insertion in the future 74.4% of participants said they would prefer it**

Brown. Using Lidocaine for Peripheral IV Insertions: Patients' Preferences and Pain Experiences. April 2003.

Lidocaine vs. Cream

- **In one particular study the group who received the Lidocaine experienced the most pain as far as applying the local anesthetic**
- **The group who received the EMLA Cream experienced the most pain during IV insertion**

Miller. 1% Lidocaine Injection, EMLA cream, or “Numby Stuff” for Topical Analgesia Associated with Peripheral Intravenous Cannulation. June 2001.

Conclusion

- **Patients have a choice in determining if they want to have anesthetics during venous catheterization**
- **Our research has found that using Lidocaine or cream are beneficial in reducing pain during IV insertion**

Conclusion

- **EMLA Cream and ELA-Max are equally effective, but ELA-Max works in half the time**
- **Lidocaine was proven to be the most effective local anesthetic**
- **Situational circumstances**

  - Emergency

  - Prior knowledge of procedure

Kleiber. Topical Anesthetics for Intravenous Insertion in Children: A Randomized Equivalency Study. October 2002.