ANALYSISOF ANESTHESIA METHODS FOR DENTAL FEAR AND ANXIETY.

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ABSTRACT

Local anesthesia in dentistry provides comfort not only for the patient, but also for the doctor, since the planned procedures can be performed in the best possible conditions. It is clear from clinical experience and literature that local anesthesia in dentistry is not always as successful as expected. In particular, mandibular blockage may be difficult or difficult in some patients, even in the absence of a tooth with acute pulpitis. The failure rate for mandibular blockage varies from study to study and teaches us that there is no 100% success rate.

According to clinical experience and publications, the effectiveness of local anesthesia in the upper jaw is significantly higher. The main reason is probably that the cortical plates of the lower jaw are thicker and denser and have less porosity, which allows the volume of local anesthetic to diffuse into the spongy bone in the case of, for example, an attempt at buccal infiltration, which explains most of the difference with the upper jaw.

Another reason is the methods that are used to achieve local anesthesia. In the upper jaw, buccal infiltration anesthesia near the level of the tooth tips is the most appropriate technique, whereas in the lower jaw, for the above reason, local anesthesia is achieved mainly by trying to apply a volume of local anesthetic near the mandibular nerve before it penetrates the lower jaw. Due to anatomical differences in the location of the second branch of the trigeminal nerve relative to the branch of the lower jaw, the effectiveness of local anesthesia is not 100%.

Research objective: The aim of the work is a comparative analysis of analgesia methods in dental interventions.

Research methods: A number of methods were used to achieve the goals set and solve the problems, including the analysis of scientific literature, the study of practical reports and materials in the field of dentistry.

A total of 30 publications were considered relevant for the study: 7 reviews and 23 clinical trials.

Pain is a frequent companion of dental surgery. This condition can cause both physical and emotional discomfort, which reduces the patient's quality of life and level of satisfaction with

medical services. Effective pain management significantly improves the quality of dental care and overall patient satisfaction. This is a very important aspect in dentistry, which affects the patient's confidence and willingness to re-visit the clinic.

Each method of pain relief has its own advantages and disadvantages. It is important to keep up to date with the latest scientific developments and practical observations in this area in order to choose the most appropriate method for each specific case.

Pain management methods can be classified according to various criteria. These include general anesthesia, local anesthesia, and sedation.

There are many methods of anesthesia, each of which has its own characteristics, mechanism of action and scope of application. This section explores each of them in detail.

Regardless of the method chosen, the goal of pain relief remains the same: to reduce or eliminate pain during dental intervention.

When comparing pain management methods, various criteria are used, including their effectiveness, safety, cost, and availability.

The effectiveness of pain management is critical to ensuring patient comfort during dental treatment. That is why effectiveness is one of the key criteria when comparing different methods of pain management.

Of the six amide products used in local dental anesthesia, 13 in in vivo studies and 4 reviews have shown that **articaine** is амидомthe most effective amide compared to lidocaine, mepivacaine, prilocaine, or bupivacaine. Mepivacaine and bupivacaine, in contrast to lidocaine, showed higher efficacy in one review and one in in vivo study each.

Only one in in vivo study found that prilocaine, in contrast to lidocaine and bupivacaine, has a higher efficacy. Two in vivo studies vivohave shown that ropivacaine is highly effective at various concentrations, without comparing it to another amide or lignocaine.

However, when the duration of the local anesthetic effect was taken into account, mepivacaine was shown to act for a shorter time compared to lidocaine.

Eleven studies either found no significant differences between the two types of amides, or examined the volume of an anesthetic and found that its effectiveness was significantly higher if it was higher. volumes were entered (more than one cartridge).

Regarding the addition of vasoconstrictors epinephrine and clonidine, one in in vivo study concluded that clonidine increases efficacy better than epinephrine combined with lidocaine,although increasing the concentration of epinephrine with articaine and lidocaine does not significantly affect the effectiveness of anesthesia. Three in in vivo studies have shown that the addition of sodium bicarbonate buffer to lidocaine and articaine did not improve the effectiveness of either. One study examined the difference between mepivacaine combined with levonordefrin and lidocaine with epinephrine and concluded that there were no significant differences in efficacy between the two.

In other in in vivo studies, drugs such as meperidine and mannitol were added to lidocaine, and none of them significantly affected the effectiveness of anesthesia. Liposomal bupivacaine was also evaluated, but it also did not improve efficacy.

Each method of pain relief has its own set of potential side effects. This section evaluates and compares different methods from this point of view.

Anesthetic	Toxicity
level Articaine	1

Mepivacaine	1
Lidocaine	2
Ubistesine	2
Procaine	3
Dibucaine	3
Bupivacaine	4
Ropivacaine	5

Articaine and mepivacaine have the lowest toxicity, with a toxicity coefficient (LD50) of more than 1000 mg / kg. Lidocaine has an average toxicity, with a toxicity coefficient of 100 to 1000 mg/kg. Ubistesin also has an average toxicity, but its toxicity coefficient is between 50 and 100 mg / kg. Procaine, dibucaine and bupivacaine are highly toxic, with a toxicity coefficient of 10 to 50 mg / kg. Ropivacaine has a very high toxicity, with a toxicity factor of less than 10 mg / kg.

The toxicity factor (LD50) is the amount of substance that must be administered to kill half the animal population. The higher the toxicity coefficient, the lower the toxicity of the substance.

The degree of toxicity of anesthetics can also be assessed by their effect on the central nervous system (CNS). Low-toxic anesthetics, such as articaine and mepivacaine, usually cause only mild CNS symptoms, such as dizziness and nausea. Moderate-toxic anesthetics, such as lidocaine and ubistesin, can cause more severe CNS symptoms, such as seizures and respiratory arrest. Highly toxic anesthetics such as procaine, dibucaine, and bupivacainecan cause severe CNS symptoms such as seizures, respiratory arrest, and death.

It is important to note that the toxicity of anesthetics can be increased when using high concentrations, as well as when they are administered in one place or in several places in a short time. Patients with liver or kidney diseases are also more sensitive to anesthetics.

CThe cost of anesthetics does not always depend on their toxicity. For example, articaine and mepivacaine, which are the safest anesthetics, have about the same price as lidocaine, which has an average toxicity.

The cost of anesthetics may also depend on their composition. For example, articaine, which contains the vasoconstrictor epinephrine, has a higher price than mepivacaine, which does not contain epinephrine.

Conclusion: The main conclusions based on the results of a comparative analysis of anesthesia methods in dental interventions:

- Application anesthesia is the simplest and safest method of anesthesia, but it has a limited range of applications.
- Infiltration anesthesia is a more effective method of anesthesia than application, and can be used for more complex dental procedures.
- Regional anesthesia provides the most effective pain relief, but requires a more highly qualified dentist.
- General anesthesia is the safest method of pain management for patients with severe fear of dental intervention.

Considering that in Uzbekistan the most common method of choosing anesthesia is local conduction or infiltration anesthesia, some of the list of available anesthetics show better results, according to the criteria of effectiveness and the likelihood of side effects, articaine and its analogues occupy the leading positions.

In recent years, non-drug pain management methods such as hypnosis and acupuncture have been actively developed in dentistry. These methods have no side effects and can be used as an alternative to medical anesthesia.

In general, the possibilities of using various methods of anesthesia in practice are very wide. The dentist should choose the method of anesthesia depending on the type and complexity of the dental intervention, as well as on the individual characteristics of the patient.

Prospects for research in the field of pain management in dentistry are associated with the development of new methods and drugs that provide more effective, safe and comfortable pain management.

One of the promising areas is the development of new local anesthetics with higher efficiency and lower toxicity. Currently, research is underway on new anesthetics that do not require injection and can be used in the form of sprays or gels.

Another promising area is the development of new methods of regional anesthesia. Currently, new drugs and technologies are being developed to provide more effective and long-lasting regional anesthesia.

Another promising area is the development of methods of non-drug analgesia. Research is currently underway on new methods of hypnosis and acupuncture that can be used for pain relief in dentistry.

The implementation of these prospects will improve the quality of dental treatment and increase patient comfort.

Here are some specific areas of research in the field of pain management in dentistry [58]:

- Development of new local anesthetics that do not require injection.
- Development of new methods of regional anesthesia that provide more effective and long-term anesthesia.
- Development of new methods of non-drug analgesia based on hypnosis and acupuncture.
- Development of new methods of pain management for patients with severe diseases.
- Development of analgesia methods that ensure restoration of tooth sensitivity after surgery.

Research in these areas is conducted in leading dental clinics and research centers around the world.

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