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Evaluating the effectiveness of cinnamon oil on pain severity caused by needle pick during inferior alveolar nerve block in children

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Abstract

Objectives: Despite the great development witnessed by dentistry, pain during the insertion of a local anesthesia needle is still the main cause of fear and anxiety in children, and with the spread of many methods to relieve pain, research is still ongoing to find an effective surface anesthetic to relieve pain well, so the aim of this research was to take advantage of the available and cheap non-pharmacological natural materials in achieving this goal.

Materials and Methods: A randomized, double-blind clinical study was conducted involving 60 children from the Pediatric Dentistry Department of Damascus University. Cooperative children were selected (according to the Frankl scale Grade 3 and 4), within the age group of 7-11 years. The sample was divided into two groups where each group included 30 children, namely the cinnamon oil group and the benzocaine gel group, each of the substances was applied for 3 minutes. The pain was assessed subjectively by the child using the scale Wong Backer Faces modified by Al Monaqel using a wooden board designed with measurements(60-20) and the image of the scale was printed on it. The pain was also assessed by three external evaluators using the sound, eye and movement meter (SEM) after the child was filmed in a video method using the camera of the Mi9 mobile device and the film was shown to them. The evaluation was conducted during three times: : First during the application of the substance, secondly before anesthesia, and thirdly, after the completion of anesthesia.

Results: There were no significant differences between cinnamon oil and benzocaine gel 20% in pain relief during local anesthetic needle insertion according to the SEM scale, and Wong Backer Faces modified by Al Monaqel scale.

Conclusions: cinnamon oil has a surface anesthetic effect similar to that of benzocaine gel 20%, it also has a pleasant taste.

Keywords: Cinnamon Oil, Pain, Needle pick.

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تقييم فعالية زيت القرفة في خفض شدّة ألم وخز إبرة إحصار العصب السنخي السفلي عند الأطفال

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الملخص:

هدف البحث: بالرّغم من التطور الكبير الذي يشهده طب الأسنان لا يزال الألم أثناء إدخال إبرة التخدير الموضعي المسبب الرئيسي للخوف والقلق عند الأطفال ومع انتشار العديد من الطرائق لتخفيف الألم لا يزال البحث مستمراً لإيجاد مادة تخدير سطحي فعّالة لتخفيف الألم بشكل جيد لذلك كان الهدف من هذا البحث هو الاستفادة من المواد الطبيعية المتوافرة والرخيصة غير الصنعية في تحقيق هذا الهدف.

المواد والطرائق: : تمَّ إجراء دراسة سريرية مُعشّاة ثنائية التعمية شملت 60 طفلاً من مراجعي قسم طب أسنان الأطفال بجامعة دمشق. تم اختيار الأطفال المتعاونين (حسب مقياس فرانكل الدرجة 3 و 4)، ضمن الفئة العمرية 7-11 سنة. تمَّ تقسيم العينة إلى مجموعتين حيث تضمنت كل مجموعة 30 طفلاً وهي مجموعة زيت القرفة ومجموعة جل البنزوكائين، تمَّ تطبيق كل مادة من المواد مدة 3 دقائق ، تمَّ تقييم الألم بشكل ذاتي من قبل الطفل ذاته باستخدام مقياس Wong Backers Faces المعدل من قبل المنقِّل بالاستعانة بلوحة خشبيّة بقياسات(60×20سم) مطبوعٌ عليها صورة المقياس. كما وتمَّ تقييم الألم بشكل غير ذاتي من قبل ثلاثة مقومين خارجيين باستخدام مقياس الصوت والعين والحركة (SEM) وذلك بعد تصوير الطفل بطريقة الفيديو باستخدام كاميرا لجهاز الهاتف المحمول MI9 وعرض الفيلم عليهم. أجري التقييم خلال ثلاثة أزمنة: أولاً أثناء تطبيق المادة وثانياً قبل التخدير وثالثاً بعد الانتهاء من التخدير.

النتائج: لم يكن هنالك فروق ذات دلالة إحصائية بين زيت القرفة وجل البنزوكائين 20% في تخفيف الألم أثناء إدخال إبرة التخدير الموضعي وفقاً لمقياس SEM ومقياسFace Wong Backers المعدل من قبل المنقِّل حيث P>0.05 وذلك بدرجة ثقة 95%.

الاستنتاج: يمتلك زيت القرفة تأثيراً مخدراً سطحياً مشابهاً لتأثير جل البنزوكائين 20%.

الكلمات المفتاحية: : زيت القرفة، ألم، وخز الإبرة

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Introduction:

Despite the great development witnessed by dentistry in the field of local anesthesia, local anesthetic injection is still the main cause of fear and anxiety for patients, especially children [1] because it is mainly associated with pain and discomfort. Moreover, fear and severe anxiety lead to increased perception of pain.[2] Therefore, comfortable and painless anesthesia is crucial to gaining the patient's confidence from the beginning of treatment.

Surface anesthetics are the gold standard used in pediatric dentistry to relieve pain during local anesthetic needle insertion. Both lidocaine and benzocaine gels have long been used for this purpose, but the increase in adverse reactions associated with the use of these chemical anesthetics, especially in young children, has been the main reason for searching for alternatives to these substances.

The use of herbs to relieve mouth and tooth pain has been a good and popular option for centuries due to their availability, reliable effectiveness, and safety without the negative effects found in processed chemical preparations. There are many plants available that possess anesthetic and analgesic properties, such as cloves, turmeric, lavender oil, and betel leaves.

However, herbal materials may not be among the strongest analgesics, but they are useful in relieving pain in mild and moderate cases [3]. Therefore, it was necessary to conduct research to test the effectiveness of some herbal materials as superficial anesthetics in dentistry that are useful in controlling pain during the insertion of a local anesthesia needle. Thus reducing fear and anxiety in children.

Theoretical review

Pain management during local anesthesia is a challenge for pediatric dentists. Therefore, many developments have emerged in this field that can be used alongside the traditional method [4]

Herbal Materials

The use of herbs to relieve mouth and tooth pain has been a good and popular option for centuries due to their availability, reliable effectiveness, and safety without the negative effects found in processed chemical preparations. There are many plants available that possess anesthetic and analgesic properties, such as cloves, turmeric, lavender oil, and betel leaves.

Cinnamon

Cinnamon is a popular spice commonly used in the kitchen for its aroma and flavour. It is native to Sri

Lanka and Asia. It is obtained from the inner bark of evergreen trees that reach a height of 10-15 meters. It has a distinctive smell and its fruit is a purple berry one centimeter long and contains one seed (Jakhetia). Cinnamon powder has antibacterial, anti-ulcer, pain-relieving, antioxidant and cholesterol-lowering properties. It is also useful in treating type 2 diabetes, and has been traditionally used to treat toothache and fight halitosis [5]. Cinnamon contains cinnamaldehyde, benzaldehyde, eugenol, and linalool, in addition to polyphenols, which are attributed with antioxidant properties as they protect against free radicals[6].

Cinnamon oil

Oil extraction methods

Methods are divided into: traditional methods, advanced methods

Traditional methods

Distillation is one of the oldest, simplest, and most widespread methods for extracting cinnamon oil. The extraction device consists of a heating source topped with a copper or steel tank filled with water, inside which the bark or leaves are placed. The water is heated until it boils, and water vapor loaded with essential oil vapor rises inside the distillation device. The oil is separated from the water through a graduated tube so that the oil collects through the valve. Finally, the essential oil is dried using anhydrous sodium sulfate to facilitate the process of separating the oil from the water [7].

Advanced methods

It includes extraction using liquefied (supercritical) carbon dioxide gas, which acts as a solvent in order to extract essential oil molecules, as there are three states of matter in nature: solid, liquid and gaseous. The supercritical state is the fourth state in which matter can exist, which is a fluid state between liquid and gaseous.Supercritical carbon dioxide is obtained through machines that keep it under very high pressure and at a low temperature. The carbon dioxide passes through the feedstock and enters all the aromatic molecules into a separator after which the pressure is reduced in order to separate the carbon dioxide from the extract and thus regain its gaseous state.[7]

The chemical composition of the oil varies depending on several factors such as the part of the plant used, the age and location of the tree, the season of growing, and the method of extraction. Cinnamaldehyde is mainly found in the bark, eugenol in the leaf oil, and camphor in the root bark oil.

Bark oil consists mainly of cinnamaldehyde 55%_eugenol 5-18%_cinnamon acetate 1-5%_caryophyllene 1-4%_linalool 1-3%_cineole 1-2% [8]

Physical and chemical properties of cinnamon oil

Essential oils are aromatic liquids that are soluble only

in organic solvents and do not dissolve in water due to their hydrophobic nature and low density compared to water. They are also lipophilic, well absorbed by the skin and mucous membranes, and have a generally rapid metabolism and excretion property[7].

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Basic uses of cinnamon oil

Medical uses

Cinnamon oil is used to treat dyspnea, eye inflammation, mild spastic conditions of the digestive system, flatulence, loss of appetite, diarrhea and nausea, in addition to colds, fever, arthritis and rheumatism. It is also useful in reducing cholesterol and blood sugar levels [7].

Antimicrobial uses

Cinnamon oil has an inhibitory effect on the growth of gram-positive and gram-negative bacteria and fungi. In a study conducted by Fani MM et al. in 2011 to evaluate the effectiveness of cinnamon oil and eucalyptus oil against Streptococcus Mutans, Staphylococcus Aureus and fungi isolated from the oral cavity, the results showed that all the isolated bacteria and fungi 144 were sensitive to the oils studied, but Cinnamon oil has shown greater ability to stop germs and fungi [9].

Materials and Methods:

Study design

A double-blind, randomized controlled clinical study.

Sample

The sample included 60 children, aged 7-11 years, who attended the Pediatric Dentistry Department and who needed a regional anesthesia injection in the mandibular in order to perform treatments on the temporary lower molars. The sample was distributed into two groups:

Group 1: cinnamon oil group

Group 2: Benzocaine gel 20% group.

Inclusion criteria:

1. Children who are physically and mentally healthy, do not suffer from general diseases and do not take medications.
2. Children who need treatments for temporary lower molars.
3. Children who are able to follow instructions.

Exclusion criteria:

1. Children suffering from bleeding disorders.
2. Allergy to any of the materials used**.**
3. The presence of an abscess in the work area.
4. Systemic diseases that affect the integrity of the oral mucosa
5. Problems with sensory-motor perception.
6. Uncooperative children (according to Frankl, negative or absolute negative).

Materials and tools:

1. Sterile examination tools consisting of a mirror, a probe, a tray of forceps, and a shank.
2. Personal protection materials (gloves, mask, medical gown).
3. Aspirating syringe.
4. Short needle tips (27 gauge).
5. Sterile cotton swabs.
6. Anesthesia ampoules 2% lidocaine.
7. MI9 mobile phone camera.
8. Benzocaine gel 20%.
9. A wooden board measuring 20 x 60 with Wong–Baker Faces Pain Rating Scale printed on it.
10. Cinnamon oil (a golden-yellow liquid with an oily texture stored in 60 ml bottles, evaluated for its distinct flavor and aroma. This oil is taken from cinnamon branches by steam distillation, as it was manufactured by Tact Company and is available in a ready-made package in pharmacies) It contains cinnamaldehyde, camphor , cinnamon acetate, caryophyllene, linalool and eugenol.

Study method:

Through interviewing the child, the degree of his behavior was determined according to Frankl, and accordingly the researcher accepted children classified as grades 3 and 4. After conducting a clinical examination, the stages of work were divided into two stages.

First stage

After isolating and drying the site selected for the regional anesthesia injection, the studied materials were applied using sterile cotton swabs as follows:

The first group: 0.3 ml of cinnamon oil was applied for 3 minutes.

The second group: 0.3 ml of 20% benzocaine gel was applied for 3 minutes.

The substance was chosen for each child according to the sequence in which the child reviewed the section (the effect of chance for the child), ensuring equality between the two groups (children from 1 to 30 used cinnamon oil, and from 31 to 60 used benzocaine gel). Blinding was ensured so that the child did not know. The external component is the quality of the substance used.

The child was videotaped from the beginning of applying the studied substance until the end of anesthesia using the MI9 mobile phone camera. The local anes-

thesia syringe was always hidden from the child's sight. The word fear or pain was avoided. An inferior alveolar nerve block injection was performed (The position of the mandibular foramen is determined, which is at a level parallel to the level of the occlusal surface of the primary teeth in children within the study sample.

The tip of the syringe needle is directed at a level between the first molar and the second temporary lower molar on the opposite side. It is recommended to inject a small amount of anesthetic when entering the oral mucosa. The average depth of entry is 15 mm and varies according to the size of the mandibular, depending on the age of the patient. Approximately 1 mm of anesthetic solution is injected) [10].

Children were allowed to use the modified Wong Backers Faces scale three times: first during application, second before anesthesia, and third after anesthesia was administered. Using a wooden board designed with measurements (20-60), an image of the scale was printed on it. This scale includes only four faces, and the ratings range from (no pain) to (severe pain) to facilitate the selection of the appropriate face by the child. This scale includes four grades, 0 (no pain).), 1 (mild pain), 2 (moderate pain), 3 (severe pain)

The degree of taste acceptance of the studied materials was measured by the child by asking him an oral question immediately after completing the application of the material. The question was whether the taste was good and was coded as (1), normal(2),and bad(3). His answer was recorded on the child's assessment form.

Second stage

Three pediatric dental residents, trained in voice, eye, and movement scales, recorded the results of measuring pain and behavior using the taped video, without knowing the type of surface anesthesia used. The information was recorded in the child's evaluation form on which only the child's name and number were recorded, based on the SEM scale, which focuses on the changes that occur in the patient's voice, eyes, and movement to evaluate the patient's comfort and pain during treatment (1-comfortable, 2-mild discomfort, 3-moderate discomfort, 4- In pain) by summing the values of each of the voice, eye, and movement measures so that the total ranges between 3 and 12. The result was approved by agreement of at least two evaluators, and if there was disagreement, the sum was taken.

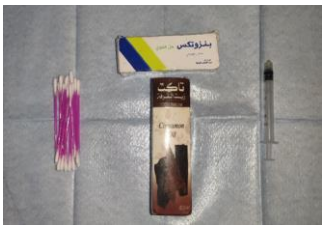
Statistical study:

Using the statistical program SPSS 20 (Statistical Package for Social Science), statistical analysis of the recorded data for the variables studied in the research was performed, and the following was done:

1. Calculating the absolute and relative frequency distribution of the number of children for the children subject to the study, according to their sex, age, and age of treatment, in each of the research groups, namely Group 1 (cinnamon oil) – Group 2 (benzocaine gel).
2. Studying the nature of the distribution of data for the variables studied in the research using the Kolmogorov Smirnov Test in the statistical program SPSS20. The distribution was considered normal when the null hypothesis was accepted ,that's when the P-value was greater than 0.05. The distribution was abnormal when the null hypothesis was rejected and the alternative hypothesis was accepted, that is when the P-value is less than 0.05.
3. Calculating descriptive statistical values (number - arithmetic mean - standard deviation - lowest value - highest value - standard error) for the studied variables.
4. Comparing between the recorded values of continuous quantitative variables with a normal distribution between the studied groups to study the presence of statistically significant differences using the One Way ANOVA test in the statistical program SPSS 20, which is one of the parametric statistical tests that is used for the statistical analysis of continuous variables that are subject to a normal distribution, with the aim of comparing the means of the studied variable between the research groups among themselves, where the value of the significance level P-value less than 0.05 was considered statistically significant ($P<0.05$). At a confidence level of 95%.
5. Comparing the recorded values of continuous quantitative variables with a normal distribution between the study groups bilaterally to study the presence of statistically significant differences between each two groups using Bonferroni Post Hoc Tests associated with a one-way analysis of variance test to study the effect of the methods used in the study on the quantitative variables with Normal distribution in research groups, The value of the difference between the means of each two groups, the value of the standard error of the difference, and the value of the significance level P-value resulting from the use of Bonferroni Post Hoc Tests associated with the one-way analysis of variance test in the statistical program SPSS 20 were calculated with the aim of comparing the means of the studied variable

between each of the two methods. The P-value of less than 0.05 was considered statistically significant (P<0.05) at a confidence level of 95%.

6. Drawing diagrams for nominal data and continuous quantitative data for each of the variables studied in the research groups using Microsoft Excel 2010.
7. To determine the degree of difference in the average pain score, an independent samples test was performed to study the significance of bilateral differences in the average pain score according to the two self-evaluation scales and the behavioral evaluation scale (SEM) (sound-eye-movement). An independent samples test was also performed to study the significance of binary differences in the average degree of taste acceptance among children.



Results:

Table No. (3) shows the value of the arithmetic mean, standard deviation, standard error, and the highest and lowest value of the pain score variable according to the self-evaluation scale in each group of children. Table No. (4) Shows the following:

During the time during application: When comparing the average pain score variable between the cinnamon oil group and the benzocaine gel group, there are no statistically significant differences, where P>0.05, with a confidence degree of 95%.

During the time before the injection: When comparing the average pain score between the benzocaine gel group and the cinnamon oil group, there were no statistically significant differences, with P>0.05, with a 95% confidence degree. From Table No. (6) during the time during application: When comparing the average pain score variable between the cinnamon oil group and the benzocaine gel group, it is noted that there are no statistically significant differences, where P>0.05, with a confidence degree of 95%.

During the time before injection: When comparing the average pain score variable between the cinnamon oil group and the benzocaine gel group, it is noted that there are no statistically significant differences, with P>0.05, with a 95% confidence degree.

During the time after the injection: When comparing the average variable degree of pain between the cinnamon oil group and the benzocaine gel group, it is noted that there are no statistically significant differences, where P>0.05, with a confidence degree of 95%.

Table No. (7) shows the value of the arithmetic mean, standard deviation, standard error, and the highest value and lowest value for the taste acceptance variable in each group of children. From Table No. (8), it is noted that when comparing the average of the taste acceptance variable between the benzocaine gel group and the cinnamon oil group, the sign of the difference between the means of the two groups was positive, meaning that the average of the taste acceptance variable in the cinnamon oil group was less than the average of the taste acceptance variable in the gel Benzocaine group, with statistically significant differences, where P<0.05, with a confidence degree of 90.

Table (1): Results of sample distribution according to the gender of the child

Total	Gender			
	Females	Males		
30	15	15	Number	Cinnamon oil
100.0%	50.0%	50.0%	Percentage	
30	13	17	Number	Benzocaine gel
100.0%	43.3%	56.7%	Percentage	
90	28	32	Number	Total
100.0%	45.6%	54.4%	Percentage	

Table (2): Results of sample distribution according to the child's age

Total	Age						
	11	10	9	8	7		
30	4	3	4	6	13	Number	Cinnamon oil
100%	13.3%	10.0%	13.3%	20.0%	43.3%	Percentage	
30	1	1	7	11	10	Number	Benzocaine gel
100%	3.3%	3.3%	23.3%	36.7%	33.3%	Percentage	
60	5	4	11	17	33	Number	Total
100%	6.6%	5.6%	16.7%	27.8%	43.3%	Percentage	

Table (3): The value of the arithmetic mean, standard deviation, standard error, and the highest and lowest value of the pain score variable according to the self-evaluation scale in each group of children.

Highest value	Lowest value	Standard error	Standard deviation	Mean	N	Groups	Time
3	0	0.18	1.00	0.63	30	Group1	During application
3	0	0.15	0.84	0.67	30	Group 2	
3	0	0.14	0.78	0.47	30	Group 1	Before injection
2	0	0.15	0.79	0.70	30	Group 2	
3	0	0.18	1.01	0.87	30	Group1	After injection
3	0	0.18	0.96	1.03	30	Group 2	

Table (4): Results of the analytical statistical study of the pain degree variable according to the self-evaluation scale

P-value	The difference between the two averages	Compared Groups		Time
0.887	-0.03	Benzocaine Gel %20	Cinnamon Oil	During the application
0.259	-0.23	Benzocaine Gel %20	Cinnamon Oil	Before injection
0.503	0.17	Benzocaine Gel %20	Cinnamon Oil	After injection

Table (5): Results of a study of the effect of materials used in research groups on the degree of pain according to the behavioral evaluation scale (SEM)

Highest Value	Lowest Value	Standard Error	Standard Deviation	Mean	Number	Groups	Time
2	1	0.03	0.18	1.03	30	Cinnamon Oil Group	During the application
2	1	0.03	0.18	1.03	30	Benzocaine gel group	
2	1	0.05	0.25	1.07	30	Cinnamon Oil Group	Before injection
1	1	0.00	0.00	1.00	30	Benzocaine gel group	
4	1	0.16	0.85	1.97	30	Cinnamon Oil Group	After injection
4	1	0.15	0.79	2.30	30	Benzocaine gel group	

Table (6): Results of the analytical statistical study of the pain degree variable according to the SEM scale

P-value	The difference between the two averages	Compared Groups		Time
1.000	0.00	Group2	Group1	During the application
0.244	0.07	Group2	Group1	Before injection
0.377	-0.33	Group 2	Group1	After injection

Table (7): The arithmetic mean, standard deviation, standard error, and the highest value and lowest value for the taste acceptance variable in each group of children.

Highest Value	Lowest value	Sandard Error	Standard Deviation	Mean	N	Groups
3	1	0.15	0.81	1.97	30	Group 1
3	1	0.12	0.68	2.43	30	Group 2

Table: (8) Results of the analytical statistical study of the taste acceptance variable.

P-value	The difference between the two averages	Compared groups	
0.016	-0.47	Group 2	Group1
0.016	0.47	Group1	Group 2

Discussion:

This study was designed to be a randomized, double-blind clinical study, as both the patient and the external evaluator do not know the type of narcotic substance used to prevent any bias on the part of the researcher. This study included 60 children after referring to the power analysis test. They were chosen as collaborators so that the child's response to pain would not be affected. The children participating in the research were behaviorally evaluated according to Frankl's scale and divided into "positive" and "absolute positive" to include them in the study sample. Their ages ranged between 7-11

years, as children in this age group have the ability to Cognitive variability is improved and pain perception becomes less [11]. The sample was divided into two groups. Each group included 30 children who needed a regional anesthesia injection in order to perform treatments on the lower molars. 0.3 ml of each of the studied materials was applied for 3 minutes. The application time for the studied materials was standardized so that the difference would

not affect The application time depends on the child's reaction to the studied material. Pain was evaluated three times before applying the substance, during its application, and after local anesthesia by three resident doctors trained in the scale used. The value of voice, eye, and movement was recorded separately. Then the values were summed to make the total range between 3 and 12, and the result was approved by consensus of at least two doctors. In case of disagreement, the total was taken. The degree of the child's acceptance of the taste of the studied substance was evaluated by asking the child an oral question whether the taste of the substance was good, bad, or normal, and the answer was recorded in the evaluation form.

Discussing the effect of the material used on the variable degree of pain according to the self-evaluation scale. When studying the effect of the substance used on the average pain sensation during each of the periods studied, which are (during the application of the substance), (before injecting the local anesthetic), there were no statistically significant differences, at a 95% confidence level, between the groups of substances (cinnamon oil and benzocaine gel 20). %) This is because during these periods there is no action that incites pain in the child. When studying the effect of the substance used on the average pain sensation over time (after injecting the local anesthetic), it is found that the pain score in the cinnamon oil group is lower than the pain score in the benzocaine gel group according to the self-assessment scale of the pain score, without any statistically significant differences, where P>0.05, with a confidence degree of 95. This result may be due to the lack of objectivity and reliability of self-reported pain measures, as some children exaggerate their feelings of pain, especially immediately after the procedure. It is also possible that children point to a smiley face when asked to rate their pain, regardless of the degree of their pain, because they believe that the therapeutic procedure It's over and they can go. Although the modification made by the reviewer to the Wong-Backer scale, which contains only 4 expressive faces, improved the psychometric properties of the scale, as it suited children in the Syrian community and increased their ability to interact with the scale, it did not live up to the level of non-subjective pain scales, especially in children younger than 10 years. In this study, the majority of children were between 7-8 years of age [12].

When studying the effect of the substance used on the average pain sensation during each of the periods studied, which are(during the application of the substance), (before injecting the local anesthetic), there were no statistically significant differences, at a 95% confidence level, between the groups of substances (cinnamon oil and benzocaine gel 20). %) This is due to the fact that during these periods, the application of any of the materials used did not have a painful effect on the child. When studying the effect of the substance used on the average pain sensation over time (after injecting the local anesthetic), it is found that the average variable degree of pain in the cinnamon oil group is less than the benzocaine gel group without any statistically significant differences, meaning that cinnamon oil has a superficial anesthetic effect similar to 20% benzocaine gel. This is due to the fact that cinnamon oil contains eugenol, which has a scientifically proven anesthetic and pain-relieving effect. When studying the effect of the substance on the degree of taste acceptance in children, it is found that the degree of taste acceptance for cinnamon oil is better than that of benzocaine gel with statistically significant differences. This may be attributed to the fact that cinnamon oil has a sweet and pleasant taste and is added to popular sweets that are famous in Syria.

Conclusions:

There was no statistically significant difference between the use of cinnamon oil and 20% benzocaine gel in relieving the pain of needle prick during regional anesthesia of the lower jaw in children. Cinnamon oil has a superficial anesthetic effect similar to the effect of 20% benzocaine gel. Therefore, it is recommended using it as an alternative to benzocaine gel due to its availability, cheap price, and its desirable taste for children.

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