Effect Of Taking Oral Honey In Reducing Postoperative Tonsillectomy Pain And Analgesic Dosage

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Abstract

Context: Tonsillectomy is one of the most common childhood operations. Postoperative complications of tonsillectomy include pain, nausea and vomiting, interruption of oral intake, airway obstruction with respiratory compromise, and primary or secondary postoperative bleeding. Historically, honey has been used for wound control, reducing the inflammation, and healing acceleration. Aim: This study aimed to evaluate the effects of honey on reducing of postoperative pain and decreasing of analgesic dosage among tonsillectomy children 3-15 years old. Study Design: quasi-experimental study design was used. Materials and Methods: Forty patients were randomly divided in two equal groups. Control group were treated with traditional treatment (acetaminophen and antibiotic), while, case group were treated with (acetaminophen, antibiotic and 10 ml of pure honey every 8 hours). Data was gathered via interview of child relatives at the first day of operation than through telephone number the researcher fill questionnaire about pain score assess through Visual analogue scale (VAS) and number of painkiller taken through seven follow-up day. Statistical Analysis: Data was analyzed by SPSS 17 software and related tests. Results: Pain comparison between two groups illustrated that the average time required for pain relief in patients who received honey was less than the control. The pain intensity was higher during the first 7 days post-operatively in control group. Results also showed that acetaminophen consumption in patients who received honey is lower. Conclusion: Honey has positive effect in reducing post tonsillectomy pain, and decreasing analgesic dosage and it can be used as an adjunctive regimen after surgery for better pain control.

Keywords: Tonsillectomy, Pain, Analgesic, Honey.

Introduction

Tonsillectomy is one of the most frequent surgical procedures performed within ear, nose and throat (ENT) field.[1,2] It is normally performed as a day case, “patient will come into hospital for the procedure and leave on the same day”. It is performed under a general anesthetic and takes about 45 minutes.[3] The National Health Stat Reported 289,000 ambulatory tonsillectomy procedures were performed in children less than 15 years of age in the U.S, in 2017.[4]

Almost everyone experiences pain after a tonsillectomy. It is universal, stereotypic in pattern, and varies from child to child. Most common pain site present in the throat and ears, but it can also affect the neck, head, or jaw. Most studies describe pain intense on the day of surgery, gradually decreasing over the first week but not disappearing until the end of the second week. Many patients in addition to the pain at the site of surgery complain of dryness of the throat, radiating pain to the jaws and ears. They also complain of sharp lancinating pain with every swallow. There is often a “bump” in discomfort on the 3rd to 5th postoperative days. The speed of pain goes away depends on the
individual. Some people will experience pain up to 14 days after the procedure. Research suggests that adults also experience more pain and bleeding than children following a tonsillectomy.[5]

Several studies with different results attempted to determine the best methods for pain control in these patients, using wide spectrum of analgesics, such as paracetamol, opioids and non-steroidal anti-inflammatory drugs (NSAID).[2,6]

Common potential adverse effects of these analgesics are nausea, vomiting, respiratory depression and bleeding.[6] However, no optimal treatment in terms of efficacy and adverse effects has still been developed for post-tonsillectomy pain.[7]

The most common analgesic drug for reducing post tonsillectomy pain is acetaminophen but it cannot relieve pain completely.[6] Therefore, adequate pain management is very important to prevent potential complications associated with ineffective postoperative pain control.[1]

Since ancient to present time, honey is used as one of the non-drug method to reduce pain for medicinal and therapeutic purposes due to its biological activity.[7] It has been shown to possess antibacterial and anti-inflammatory properties, Antioxidant, anti-inflammatory, and antibacterial properties, as well as accelerated wound recovery and pain relief, are the benefits reported for honey as a natural therapeutic method.[7,8]

About 400 years before Jesus Christ, Hypocrite used honey for wound healing, especially the ones on foot. Even ancient Egyptians used honey for treatment of the corneal and conjunctiva inflammation, and burns at about 5000 years ago.[9]

In modern medicine, honey has been used successfully to treat burns, graft donor sites, post-operative wound infections, and skin ulcers. Moreover, honey has also been reported to benefit wound care of patients undergoing chemotherapy, those with physiological wound disorders, and prolonged injury.[10] In previous studies, there is no report for honey side effects in wound healing.[11]

Therefore, honey may have benefits on tissue repair, thereby reducing post-operative pains. The application of honey may reduce inflammation of infected wounds and facilitate the healing time duration.

The present study aimed to evaluate the effects of honey on reducing of postoperative pain and decreasing of analgesic dosage among tonsillectomy children 3-15 years old.

**Materials and Method**

This study was carried out in one day surgery department, Prince Miteb Bin Abdul-Aziz Hospital in Sakaka city in Saudi Arabia. The study purpose explained to patients' relatives for taking their agreement in sharing of the study. They have ethical right to agree or refuse to participate in the study.

**Study design**

Quasi-experimental study design was utilized for the current study.

**Study population**

Forty immediate postoperative tonsillectomy patients (3-15 yrs) were shared in this study after taking their relatives agreements as a convenience sample. Then, they divided into two groups, 20 control group and 20 honey group. Collection of data was started from the beginning of January 2022 to the end of April 2022. **Exclusion criteria:**

Tonsillectomy combined with adenoidectomy, diabetes, and postoperative hemorrhage.

**Method of data collection**

Three tools used in the present study as following:

1- Socio-demographic data sheet: it include data about (age, sex, mobile telephone number).
2- Sheet for measuring pain score for both groups through using Visual analogue scale (VAS).
3- Sheet for measuring number of taking painkiller for both groups.
Patients were divided into 2 groups 20 in each. Both group A (control) group and B (case) one. The control sample following tonsillectomy taken the traditional treatments ‘parenteral antibiotic (Ceftriaxone sodium) 500 to 1000 mgs depending upon the body weight, and Acetaminophen in oral formulation instructing them to take a dose of Acetaminophen (Dose fixed according to the age 250mg to 1000 Gm) whenever they feel the pain not tolerable, for a period of 7 days, as doctor order’. While the study sample taken the previous traditional treatments plus honey ‘honey group’.

For the honey group, 10 mL honey available from supermarkets mixed with 5 mL of water was given to the patient to gargle for two minutes, then swallowed, which is done every six hours during the period of awake with the traditional treatment.

Gathering information done through calling patients’ family in each group and asking about VAS and number of painkiller taken through the seven follow-up days.

From the 1st, 2nd, 3rd, and 7th day after surgery, a Visual Analogue Scale (VAS) “Appendix A” was applied by the patients family for subjective assessment of post-operative pains in the throat, sharp pain with each swallow, dryness of the throat and radiating pain to the jaws and ears. While the frequency of analgesia was used for the objective evaluation. After being discharged from the hospital, all subjects were instructed to record pain and the amount of analgesia was used at home. Data were taking from patients’ family through telephone.

Statistical analysis
The data obtained were reviewed, prepared for computer entry, coded, analyzed and tabulated. Data analysis was done by using (SPSS) version 16 and clearing of data was done then data analysis was started by descriptive statistics. Data will present use descriptive statistics in the form of frequency, percentages, mean and standard deviation. Pearson correlation analysis used for assessment of the inter-relationships among quantitative variables. After that cross tabulation and application of P-value by using paired sample t-test for testing the significant, if P-value was less than or equal to 0.05.

Ethical Considerations
Haney is safe and hasn't any complication reported in previous studies. There was no risk for study participants during application of the research. Ethical approval from ethical committee not taken. Oral agreement was obtained from all participants and their relatives after informing them about their rights to participate, refuse, or withdraw at any time. Confidentiality of any obtained information was ensured through coding the data. An official permission was obtained from the Dean of Nursing Faculty in Jouf University to the director of Prince Miteb Bin Abdul-Aziz Hospital in Sakaka city. After that the researcher obtained the permission from the head of the day of surgery departmental for collecting the necessary data for the present study. orally informed consents were obtained from the tonsillectomy patients’ relatives before starting the study.

Results
The study consisted of 20 patients in case group and 20 ones in control group. Sixty percent from control group were male while 50% from case group Fig(1). There was no significant difference between groups in gender. Age of all patients is range from 3 to 15 years, in control group Mean± SD of age is (8 ± 2.63) while in case group is (7.3 ± 2.61).

There was no significant difference in age, between groups. Post-operative pain was reduced in both group of patients, but pain was reduced much faster in honey group compared to group without honey. There was not any allergic reaction to honey in this study.

**Fig. (1) Distribution of post-tonsillectomy patients according to sex**
Table (1): Pain scores of groups from the 1st to 7th day after tonsillectomy (Variables are expressed as mean ± SD)

<table>
<thead>
<tr>
<th>Groups</th>
<th>1st day</th>
<th>2nd day</th>
<th>3rd day</th>
<th>4th day</th>
<th>5th day</th>
<th>6th day</th>
<th>7th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>5.6 ± .67</td>
<td>5.4 ± .68</td>
<td>4.7 ± .64</td>
<td>4.05 ± .60</td>
<td>3.2 ± .78</td>
<td>2.7 ± .65</td>
<td>1.9 ± .60</td>
</tr>
<tr>
<td>Case</td>
<td>5.5 ± .99</td>
<td>4.8 ± .83</td>
<td>4.1 ± .85</td>
<td>3.5 ± 1.14</td>
<td>2.5 ± .99</td>
<td>1.7 ± .73</td>
<td>1.2 ± .52</td>
</tr>
</tbody>
</table>

P-value (≤ 0.05*) = significant difference

Table (1) illustrate decrease in severity of pain between control and case groups from first day to 7th day with significant differences from the beginning of 2nd day to 7th day postoperatively.

Table (2): Number of painkiller taken after tonsillectomy (Variables are expressed as mean ± SD)

<table>
<thead>
<tr>
<th>Groups</th>
<th>1st day</th>
<th>2nd day</th>
<th>3rd day</th>
<th>4th day</th>
<th>5th day</th>
<th>6th day</th>
<th>7th day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>3.9 ± .30</td>
<td>3.2 ± .83</td>
<td>3.3 ± .74</td>
<td>2.9 ± .85</td>
<td>2.9 ± .85</td>
<td>2.7 ± .85</td>
<td>2.2 ± 1.0</td>
</tr>
<tr>
<td>Case</td>
<td>3.9 ± .22</td>
<td>3.4 ± .51</td>
<td>2.9 ± .60</td>
<td>2.6 ± .48</td>
<td>2.0 ± .64</td>
<td>1.5 ± .68</td>
<td>1.3 ± .58</td>
</tr>
</tbody>
</table>

P-value (≤ 0.05*) = significant difference

Table (2) confirm that the number of analgesic intake was decreased from 3rd day to 7th day in case study group comparing with control group with significant difference from 5th day to 7th day.
limitations of the study
There were some limitations in this study such as: disagreement of parents in continuing their cooperation, the child’s dislike for eating honey, misunderstanding of the details of VAS by parents.

Discussion
This study aimed to evaluate the effects of honey on reducing of postoperative pain and decreasing of analgesic dosage among tonsillectomy children 3-15 years old.

Medical practitioners have become increasingly concerned about adequate pain management because of the increasing number of complex outpatient procedures, and ambulatory surgeries.\textsuperscript{[12]}

This study illustrated that the average pain levels of the honey group were the lowest than the control groups. The results of this study showed a statistically significant difference ($p < 0.05$) between the honey, and control groups on VAS from day 2 ($p = 0.01$) until day 7 ($p = 0.01$) postoperatively. Similar to the results of Ozlugedik's study which showed that the pain scale experienced a significant decrease in the honey group ($p < 0.001$) starting at the two first post-operative days.\textsuperscript{[9]} While the results of Boroundman and Lal’s study, it was found that the honey group significantly lowered the pain scale from day one.\textsuperscript{[7,13]}

Tuhanioğlu & Erkan,\textsuperscript{[1] and Boroumand, et al.\textsuperscript{[7]} confirms that oral administration of honey following tonsillectomy relieve postoperative pain and decrease the need for analgesics after surgery. This result agree with the current study result. While, Fayoux & Wood\textsuperscript{[2]} study results, shown that, there is no significant differences in post-tonsillectomy pain relief between the honey and placebo groups.

In addition, this study showed a significant differences in both the pain score and the frequency of analgesic intake compared to the control group. This result disagree with Yaghoobi’s study results which showed no significant differences in both the pain scale and the frequency of analgesic use between the placebo group and the control group, the placebo group’s effect on the pain scale and the frequency of using analgesics was lower than the control group.\textsuperscript{[14]}

According to Nanda, there are no side effects or resistance to honey; hence honey is considered a safe medicine.\textsuperscript{[15]} Similarly to current study which fount no adverse effects or allergies caused by honey between honey group.

In conclusion, the present study found that honey has benefit effect on reducing post tonsillectomy pain and analgesic dosage with significant differences in second day. But, more studies like this and others are required to confirm the effect of honey in healing process and surgical tissue repair.

Conclusion
Honey has positive effect in reducing post tonsillectomy pain, and decreasing analgesic dosage and it can be used as an adjunctive regimen after surgery for better pain control.

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Nil.
Conflicts of interest
There are no conflicts of interest.

References: