EFFECT OF SIDR (BERI) HONEY ON REDUCTION OF POST TONSILLECTOMY PAIN IN CHILDREN: A RANDOMISED CONTROLLED TRIAL

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ABSTRACT

Introduction: The most important complaint reported following tonsillectomy is pain. Acetaminophen and non-steroidal anti-inflammatory drugs are mostly used for relieving pain. Honey has been used for wound healing since ages. We will compare the effectiveness of acetaminophen and acetaminophen plus honey in relieving post-tonsillectomy pain.

Methods: It was a prospective, randomised controlled trial conducted in Ear Nose throat (ENT) department of CMH Kharian. 220 children undergoing tonsillectomy were randomised to either receiving acetaminophen or acetaminophen plus honey for 7-10 days. Participants to record post-op pain used visual analogue scale (VAS), Verbal rating scale (VRS) and Numerical rating scale (NRS). Patients not willing to participate or unable to understand, and fill pain evaluation questionnaire were excluded. Age, pain scores on VAS and post-op day of pain relief were compared between the two groups by independent sample t test. Post operation pain relief was defined as pain less than 3 on VAS.

Results: The participants were aged between 6-15 years with mean age of 9.9 ± 2.15 in honey group and 10.3 ± 2.28 in control group (p=0.181). On the day of operation, pain was almost same in both the groups (6.85 ± 1.07 in honey vs 6.83 ± 1.08 in control). From first post operation day onwards pain was significantly less in honey group as compared to control (5.30±1.19, 5.83 ± 1.08, p= 0.001). Post-op pain relief was also earlier in the honey group (6.13±1.85 days) as compared to control (7.42 ± 1.13, p= <0.001).

Conclusion: Following tonsillectomy in children, oral honey administration is helpful in relieving post-op pain. Honey administration should be started as soon as possible after tonsillectomy.

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INTRODUCTION

Tonsillectomy is one of the most common operative procedure done in children coming to ear nose throat (ENT) department. Post-operative throat pain following tonsillectomy is the most common complaint[(1)]. Due to pain most patients avoid oral intake and suffer from dehydration leading to delayed recovery[(2)]. Acetaminophen alone or combined with nonsteroidal anti-inflammatory drugs (NSAIDs) is used for Post-op pain. Some of the surgeons also use steroids for relieving pain[(3-5)]. Main aim of using drugs is to relieve pain and limit the amount of drugs used.
Honey has historically been used in many ailments, both for topical application and oral intake. For topical application to wounds, honey has been used since time of Hippocrates[(6)]. However, recently the anti-inflammatory and anti-bacterial properties of honey have been reported[(7-8)]. Recent evidence of use of honey in patients receiving chemotherapy has highlighted the role of honey in enhancing the recovery speed of wound healing[(9)].
Tonsillectomy is associated with both mechanical and thermal trauma to the tonsillar fossa, along with exposure to the bacteria in oral cavity and food. These may cause infection and/or inflammation and delay the healing of wound, along with pain. The tonsillar pain is severe and associated with swallowing of food or drink. Honey has different types, and each has different composition and micro nutrients

content[10,11]. The objective of this randomised controlled trial was to check the efficacy of freshly obtained Sidr (Beri) honey in relieving post-tonsillectomy pain.

METHODOLOGY

Ethics Review Committee of Combined Military Hospital (CMH) Kharian and National University of Medical Sciences (NUMS) approved the study. We recruited 220 children from August 2016 to June 2018 coming to Ear Nose throat (ENT) department of CMH Kharian. Children aged 5-15 years old were included for study. Inclusion Criteria was children undergoing tonsillectomy for recurrent tonsillitis, chronic tonsillitis, obstructive sleep apnea, snoring, difficulty in swallowing and bad smell from mouth. Participant giving informed consent and able to understand and fill pain evaluation questionnaire were included. Exclusion Criteria was patients aged 16 years and above, having any haemorrhagic disorder (including tonsillar bleeding) or undergoing surgery for Uvulo-palato- pharyngoplasty. Any chronic disease condition like tuberculosis, diabetes, hepatitis etc. were also excluded. Patients not willing to participate or unable to understand and fill pain evaluation questionnaire were excluded.

The children were randomised into two groups by using lottery method, 110 children in each group. Control group was given Syrup Acetaminophen 15 mg/kg/dose, and antibiotics (Amoxicillin+ Clavulanic Acid 40 mg/kg), 3-4 times a day for 7 days. Any patient with pain was advised to continue acetaminophen for 3 more days (up to 10 days). Honey group was given Honey 2-4 times a day, in addition to Acetaminophenand antibiotics. Freshly obtained Sidr Honey was used for this study. Honey was provided 'free' to each participant of the Honey group along with acetaminophen and antibiotics. Honey was started on the day of operation when the child started taking orally. The children were advised to use honey at least 2-4 times per day. When the children had to use medicine along with honey, they were instructed to use honey first and then the medicines. The participants in honey group were advised to follow the protocol for 10 days.

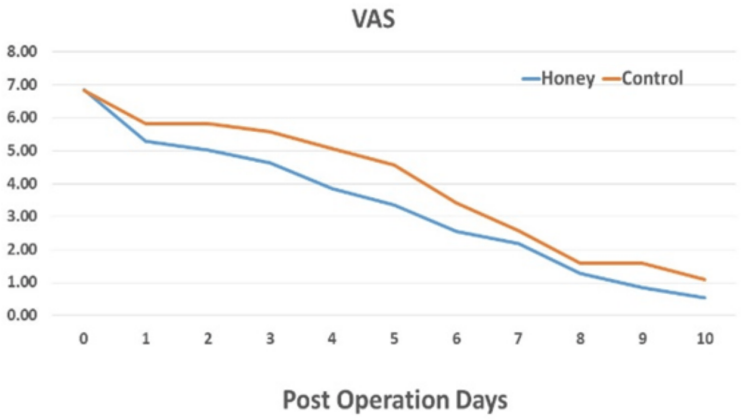
The children were also provided with paper sheet for recording pain by Visual analogue scale (VAS), Verbal rating scale (VRS) and Numerical rating scale (RS) (supplementary Figure 1). Before inclusion in study, participants were explained and counselled how to evaluate their pain, and then record on sheet provided. Participants who did not understand, or were unable to fill VAS sheet (after explanation) were excluded. Each participant was given 11 sheets to be filled each day; on the day of operation and 10 days post-op. The response sheets were collected from the participant's on follow-up visit after 7 days. For remaining three days VAS sheets were either collected from their home, dropped by participants in hospital or the participants sent images of reports on WhatsApp. The WhatsApp images were printed and attached in the participant file. Five participants in the control group did not provide the VAS sheets and were excluded from analysis. The families were advised to come to hospital for severe pain, bleeding or related issue.

Statistical Analysis was performed using SPSS version 22. All data was checked for normality and found to be normally distributed. Age, pain scores on VAS and post-op day of pain relief were compared between the two groups by independent sample t test. Data was presented as mean ± standard deviation. Post operation pain relief was defined as pain less than 3 on VAS.

Table 1: Comparison of age and pain between Honey and control groups
Values presented are mean ± SD. P for comparison between Honey and control groups.

Age	9.91 ± 2.15	10.31± 2.28	.181
VASPO	6.85 ±1.07	6.83 ± 1.08	.860
VAS1	5.30±1.19	5.83 ± 1.08	.001
VAS2	5.023±1.31	5.829 ± 1.08	<0.001
VAS3	4.64±1.35	5.57 ± .96	<0.001
VAS4	3.859±1.53	5.071 ± .96	<0.001
VAS5	3.359±1.53	4.571 ± .96	<0.001
VAS6	2.55±1.29	3.42 ± .96	<0.001
VAS7	2.18±.98	2.58 ± .65	<0.001
VAS8	1.29±.70	1.58 ± .65	.002
VAS9	.85±.86	1.58 ± .65	<0.001
VAS10	.55±.70	1.09 ± .64	<0.001
Post-Op Pain Relief (Days)	6.13±1.85	7.42 ± 1.13	<0.001

VAS= visual analogue scale. PO- post operation, Day 0. 1,2,3 refer to post operation days.



RESULTS

The participants were aged between 6-15 years with mean age of 9.9 ± 2.15 in honey group and 10.3 ± 2.28 in control group (p=0.181). On the day of operation, pain was almost same in both the groups (6.85 ± 1.07 in honey vs 6.83 ± 1.08 in control). From first post operation day onwards (figure 1), pain was significantly less in honey group as compared to control (table 1). Post-op pain relief was also earlier in the honey group (6.13±1.85 days) as compared to control (7.42 ± 1.13, p= <0.001). Acetaminophen dose was also less in the honey group.

Our study shows that in children use of honey is very effective in reducing post tonsillectomy pain. If honey intake is started on the day of operation, it works very fast and shows significant effect from first post-op day. The pain VAS was less in the honey group from post -op day 1 to day 10. Moreover, pain was relieved 1 day earlier in the honey group.

DISCUSSION

Many studies have shown the role of honey in wound healing and reducing the rate of infection. Recently honey has also shown antibacterial and anti-inflammatory properties. The role evaluated in tonsillectomy is due to re-epithelization, and control of infection. In this study we have used Sidr honey which has been shown superior to other types of honey in relation to wound healing. This superiority of Sidr honey may be due to its high fructose content. High fructose content exerts increased hygroscopic properties and also prevents honey from solidifying in cold temperature. Moreover, Sidr honey has increased number of vitamins, antioxidants and antimicrobial substances. In our study we have used fresh Sidr honey which was not more than 30 days old. Fresh honey has been shown to have maximum number of vitamins.

The effects of honey in our study may be due to the effects of honey reported in wound healing, such as reducing inflammation, edema and increasing the rate of synthesis of collagen and granulation tissue. However these effects have been reported in wounds where topical application is easy. In tonsillar fossa, topical application is very difficult and main mode of delivery is through oral intake. We have shown that oral intake is also effective in relieving post-op pain. Moreover, we can start giving honey as soon as the patient starts oral intake. In our study, we advised the participants to start honey as soon as they started oral intake and it started showing effect from first post-op day. Another effect of honey is that it increases the concentration of Vitamin C and other antioxidants in blood. These antioxidants have been shown to decrease the reactive oxygen species and limit tissue destruction. The antibacterial effects of honey may be due to its low PH and high fructose content which exerts osmotic effect.

The VAS is a subjective test and has the potential of influencing results. However, our sample included 220 participants which rules out by chance finding. We did not check the tonsillar fossa epithelization, which may have been a strong point of our study. No adverse effects of honey were reported in this study.

CONCLUSION

Following tonsillectomy in children, oral honey administration is helpful in relieving post-op pain. Honey administration should be started as soon as possible after tonsillectomy.

REFERENCES

1. Randall DA, Hoffer ME. Complications of tonsillectomy and adenoidectomy. Otolaryngology--Head and Neck Surgery. 1998;118(1):61-8.
2. Messner AH, Barbita JA. Oral fluid intake following tonsillectomy. International journal of pediatric otorhinolaryngology. 1997;39(1):19-24.
3. Hanasono MM, Lalakea ML, Mikulec AA, Shepard KG, Wellis V, Messner AH. Perioperative steroids in tonsillectomy using electrocautery and sharp dissection techniques. Archives of Otolaryngology–Head & Neck Surgery. 2004;130(8):917-21.
4. Somdas MA, Senturk M, Ketenci I, Erkorkmaz U, Unlu Y. Efficacy of bupivacaine for post-tonsillectomy pain: a study with the intra-individual design. International journal of pediatric otorhinolaryngology. 2004;68(11):1391-5.
5. Stoeckli SJ, Moe KS, Huber A, Schmid S. A prospective randomized double-blind trial of fibrin glue for pain and bleeding after tonsillectomy. The Laryngoscope. 1999;109(4):652-5.
6. Forrest RD. Early history of wound treatment. Journal of the Royal Society of Medicine. 1982;75(3):198.
7. Allen K, Molan P, Reid G. A survey of the antibacterial activity of some New Zealand honeys. Journal of pharmacy and pharmacology. 1991;43(12):817-22.
8. Al-Waili NS. Effects of daily consumption of honey solution on hematological indices and blood levels of minerals and enzymes in normal individuals. Journal of medicinal food. 2003;6(2):135-40.
9. Simon A, Sofka K, Wiszniewsky G, Blaser G, Bode U, Fleischhack G. Wound care with antibacterial honey (Medihoney) in pediatric hematology–oncology. Supportive Care in Cancer. 2006;14(1):91-7.
10. Meo SA, Al-Asiri SA, Mahesar AL, Ansari MJ. Role of honey in modern medicine. Saudi journal of biological sciences. 2017;24(5):975-8.
11. Roshan A-RA, Gad HA, El-Ahmady SH, Khanbash MS, Abou-Shoer MI, Al-Azizi MM. Authentication of monofloral yemeni sidr honey using ultraviolet spectroscopy and chemometric analysis. Journal of agricultural and food chemistry. 2013;61(32):7722-9.
12. Hwisa NT, Katakam P, Chandu BR, Abadi EG, Shefha EM. Comparative in vivo evaluation of three types of honey on topical wound healing activity in rabbits. Journal of Applied Pharmaceutical Science. 2013;3(8):139.
13. Mohebbi S, Nia FH, Kelantari F, Nejad SE, Hamedi Y, Abd R. Efficacy of honey in reduction of post tonsillectomy pain, randomized clinical trial. International Journal of Pediatric Otorhinolaryngology. 2014;78(11):1886-9.
14. Subrahmanyam M. A prospective randomised clinical and histological study of superficial burn wound healing with honey and silver sulfadiazine. Burns. 1998;24(2):157-61.
15. Efem S. Clinical observations on the wound healing properties of honey. British journal of Surgery. 1988;75(7):679-81.
16. SUGUNA L, Chandrakasan G, JOSEPH KT. Influence of honey on collagen metabolism during wound healing in rats. Journal of Clinical Biochemistry and Nutrition. 1992;13(1):7-12.
17. SUGUNA L, CHANDRAKASAN G, RAMAMOORTHY U, JOSEPH KT. Influence of honey on biochemical and biophysical parameters of wounds in rats. Journal of Clinical Biochemistry and Nutrition. 1993;14(2):91-9.
18. Schramm DD, Karim M, Schrader HR, Holt RR, Cardetti M, Keen CL. Honey with high levels of antioxidants can provide protection to healthy human subjects. Journal of agricultural and food chemistry. 2003;51(6):1732-5.
19. Tonks A, Cooper RA, Price A, Molan PC, Jones K. Stimulation of TNF-α release in monocytes by honey. Cytokine. 2001;14(4):240-2.