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The Use of Honey in First Degree Burns Treatment

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Abstract: **Recently honey therapy (HT) has been tried for the treatment of burn wounds in a few clinical trials and their results are promising. The medicinal properties of honey have been known since ages and recent studies have also shown that honey helps in acceleration of wound healing than conventional therapy.**
Objective: To investigate topical honey in superficial first degree burns though a systematic review of randomized controlled trials.
Methodology: systemic review study was performed through MEDLINE, EMBASE, PubMed, studies discussing the treatment burns wounds with honey were included and the reference lists of these studies and databases were used to seek randomized controlled trials.
Conclusion: In vitro and in vivo studies have highlighted a broad range of activities provided by honey in first degree burn treatment, most of studies approved that the honey has a positive outcome results in treating the first degree burns injuries.

Keywords: **Honey, few clinical trials and their results are promising.**

1. INTRODUCTION

Recently honey therapy (HT) has been tried for the treatment of burn wounds in a few clinical trials (Thomson, P.D, et al. 1990) and their results are promising. The medicinal properties of honey have been known since ages and recent studies have also shown that honey helps in acceleration of wound healing than conventional therapy (Subrahmanyam, M, et al. 1993). It appears to have several important properties that make it ideal as a dressing agent for burn wound.

Superficial burns comprise a spectrum of harm seriousness relying upon the profundity of the injury and the extent of the body influenced. A burn might be shallow, including only the epidermal layer of the skin. Fractional thickness burns include harm to more structures inside of the skin, and full thickness burns include all layers of the skin and might include structures underneath. The degree of the damage is generally communicated in percent of total body surface area (TBSA) which is burnt (Owen A Moore et al, 2001).

Honey is a mixture of sugars prepared by honey bees from the regular sugar arrangements - called nectar - got from blooms or other plant discharges. By altering the sucrose in the nectar, the honey bee expands the feasible thickness of the final product, and thus raises the efficiency of the process in terms of caloric density. By the addition of enzymes and the evaporation of water contained in it, honey bees transform it into a sweet liquid (M. Subrahmanyam et al, 2007).

The medicinal properties of honey have been known throughout the years. The Indian medication framework Ayurveda depicts honey as the nectar of life and prescribes its utilization in the treatment of different diseases, for example, diarrhoea, ulcers, etc (Grover S.K et al. 1985). Honey is used as a nutritious food, recommended to be taken along with lemon juice and hot water early in the morning. It was used as a component of beauty creams and for embalming the dead in Egypt (Subrahmanyam M. et al. 2006).

Honey has been utilized as an adjuvant for quickening twisted mending in ulcers, tainted wounds, and burns. It has additionally been utilized for putting away skin unites. In 1933 Philips said the utilization of honey in burns and depicted

it as the best common dressing (Philips C.E.E et al. 1933). In 1937 Voigtlander utilized honey to treat burns and focused on the help of agony and honey's calming activity (Voigtlander N, et al. 1937).

Concentrates on in creature models have exhibited that honey prompts speedier mending and lessened aggravation than controls in disease free shallow burns and full-thickness wounds and in wounds tentatively tainted with Staphylococcus aureus (Postmes T. et al. 1997). There are case reports depicting burn wounds not reacting to traditional treatment which mended when honey dressings were utilized. A review investigation of 156 burn patients treated in a healing center over a 5-yr period (1988 to 1992) found that 13 patients treated with honey had a similar outcome to those treated with silver sulphadiazine (Effem S.E.E. et al. 1988).

Objectives:

To investigate topical honey in superficial first degree burns though a systematic review of randomized controlled trials. And to highlights the most evidence in usefulness of honey for treating wounds such that resulting from first degree burns and which is popular in traditional medicine before it's scientific in old time, and to go through how this process developed to become part of the present scientific medicine.

2. METHODOLOGY

Medline (pubmed) systemic literature review and analysis for previous studies that are discussing The use of Honey in first degree Burns treatment, which become a common method after first degree burns injuries, our searched was by using the search terms 'honey' , 'burn wound' , first degree wound, alone and in combination. Publications were selected mostly in the past 20 years, but did not exclude commonly reference and highly regarded older publications. The reference list of articles was also searched, identified by the search strategy and those selected that were relevant. Selected review articles and meta-analyses were included because they provide comprehensive overviews that may be beyond the scope of this article.

Inclusion criteria were all studies comparing honey with a control group in adults or children with burns or wounds, infected or sterile. For inclusion a study had to have at least 10 individuals per treatment group, and clinical or microbiological outcomes. Studies on animals, or laboratory experiments involving assessment of antimicrobial properties of honey were excluded.

3. RESULTS AND DISCUSSION

Studies have also shown high patient worthiness to honey treatment, because of the positive impacts saw by and by: diminished torment, decreased injury estimate, and freshening up impacts (Dunford CE, et al. 2004). Any reservations or even restriction to the utilization of honey in twisted treatment, because of absence of institutionalization and to its sticky and liquid nature, are currently overcome by the assembling and showcasing of honey-based items. Such items have been authorized and endorsed for topical treatment of wounds (accessible in Australia since 1999, in Europe since 2004 and in North America since 2007) (Molan PC et at, 2002, Lusby PE et al, 2002). There are at present a few trademarks (Activon, HoneySoft, Manuka Health, Medihoney, MelMax, MelDra, L-Mesitran and so on.) and an extensive variety of sanitized items containing honey, enlisted as restorative gadgets and industrially accessible for the treatment of wounds (Biglari B, et al. 2013).

Concerning dangers of topical organization of honey, a cure utilized with certainty since antiquated times, there was no unfriendly impact in creature tests, including histopathological examinations (Postmes T, et al. 1993, Kandil An, et al. 1987). Additionally, clinical studies have demonstrated no sensitivities or other unfavorable responses, (Efem SEE, et al. 1988, Subrahmanyam M, et al. 1994) with the exception of a transient stinging sensation in a few patients, because of the sharpness of honey,(eleventh Conference of the European Wound Management Association; Dublin, Ireland. 2001) when wounds are kindled. The nociceptive nerve endings that recognize causticity are sharpened by irritation, which clarifies the clinical perception that honey decreases affectability inside of a few days, if an adequate measure of honey is hung on the injury to permit reduction of aggravation through the mitigating movement of honey (Molan PC, et al.2011). By and large, topical use of honey on wounds diminished torment was not irritating and did not bring about torment amid dressing changes (McInerney RJF, et al. 1990).

In a study that was performed by (P. S. Baghel, et al. 2009) among patients suffers first degree burn, the majority of patients (n=36) reported within 1-8 hours of burn. Out of 78 patients, 54 patients came to the hospital within first 24 hours

of burn, while 13 patients came after 24 hours of burn, 100% of patients which were managed with topical honey, who presented in less than 1 hour of burn, had their wound swab cultures negative at the time of admission; Patients who came within 1-8 hours following burn, 83% of them, had wound swab culture positive at the time of admission. The average duration of wound healing in patients in the honey group coming within 1 hour, 2-8 hours, 9-24 hours and more than 48 hours was 18.8, 17.8, 21.25 and 14.25 days, respectively. Among patients treated with honey dressing, wound swab culture became negative in less than 7 days, in 62.5%, 50% and 50% of total number of patients reporting in 2-8 hours, 9-24 hours and after 48 hours, respectively. Among 33 patients treated with honey dressing who reported within 24 hours, 26 patients had complete recovery while 7 had incomplete. Out of a total 37 patient treated with honey dressing, 30 (81%) had complete recovery.

Antibacterial properties of honey result from its low water activity which causes osmosis, its hydrogen peroxide content (Wahdan H et al. 1998) and its high acidity. Being primarily a saturated mixture of two monosaccharides, this mixture has a low water activity. Since most water molecules get associated with the sugars, only a few remain for micro-organisms, rendering a poor environment for their growth. Hydrogen peroxide in honey is activated by dilution; however, unlike medical hydrogen peroxide, commonly 3% by volume, it is present in a concentration of only 1 mmol/L in honey. Iron in honey oxidizes the oxygen free radical released by the hydrogen peroxide. When used topically (as for example, a wound dressing), hydrogen peroxide is produced by dilution with body fluids. As a result, hydrogen peroxide is released slowly and acts as an antiseptic. The pH of honey is commonly between 3.2 and 4.5. This relatively acidic pH level prevents the growth of many bacteria (Waikato, et al. 2006). The antibacterial activity of honey is mainly due to inhibits in honey. These inhibits consist of hydrogen peroxide, flavinoids, and phenolic acids, plus many other unidentified substances. Some studies suggest that the topical use of honey may reduce odours, swelling and scarring when used to treat wounds; it may also prevent the dressing from sticking to the healing wound (Schepartz AI, et al. 1966).

4. CONCLUSION

In vitro and in vivo studies have highlighted a broad range of activities provided by honey in first degree burn treatment. These include anti-infectious, anti-inflammatory, antiexudative, and antioxidant, wound healing, burns wound debriding and nutritional properties. In evidence-based medicine, research and clinical studies have shown the efficiency of honey in superficial and partial thickness burns therapy, when compared to other dressing products, making it a viable option as a valuable topical agent in clinical practice.

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