Cultural Article

Harnessing the sweet potential: the revival of honey dressing in modern wound care

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Abstract
Honey dressings have found wide application in the past and are currently experiencing a resurgence due to their beneficial properties, which aid professionals in their daily practices. Manuka honey possesses properties that are suitable for debridement of chronic wounds, stoma-therapy, and burns. This cultural article aims to review the major literature and benefits of medical honey dressing and underline five important implications (i.e., alternative care for individuals experiencing antibiotic resistance, ease of application, faster healing, shorter hospital stays, and economic convenience in countries characterized by high financial constraints) that at this stage are underdeveloped in the literature.

Keywords: Honey, Manuka, Wound-care, Nursing

Throughout history, honey-based remedies have been utilized for many centuries, particularly for wounds that underwent secondary intention healing. The development of modern medicine has resulted in a decrease in the use of honey but its activity on wound healing has become popular again in recent years. However, the specific processes by which honey operates on the wound bed have only recently been elucidated[1].

The utilization of honey as a medicinal treatment

for wounds can be inferred from archaeological discoveries and early written records, suggesting its application by ancient civilizations such as the Egyptians, Greeks, and Romans 1. The Ebers papyrus (1550 BC) is one of the earliest documents that references the use of honey, specifically in remedies[2]. Both the Bible and the Koran depict honey in a commendable manner, referring to it as a source of nourishment, a drink, and a medical remedy[3]. Primarily, it was utilized in the medical domain for the purpose of managing digestive ailments and formulating topical preparations for the treatment of wounds or injuries. For centuries, it has been utilized as a remedy for insomnia due to its hypnotic properties[4].

Hippocrates, a prominent Greek scientist, advocated for a simple dietary plan that incorporated the ingestion of honey in various forms. Furthermore, he utilized honey for many different purposes including the management of alopecia, birth control, wound repair, cathartic properties, respiratory distress, and discomfort[4].

The honey has extracted from the Leptospermum scoparium (tea tree), a plant that grows in New Zealand and was commonly called "Manuka". Bees extract the honey from the pollen of Manuka's corollas. Because of the presence of the methylglyoxal (MGO)[5,6,7], a carbonyl compound that serves as an active ingredient, the Manuka honey is characterized by potent antimicrobial and anti-inflammatory properties even at low concentrations[4,8,9]. In detail, the Manuka honey has demonstrated efficacy against a variety of bacteria commonly present in wound infections, including Staphylococcus Aureus, Pseudomonas Aeruginosa, MRSA (Methicillin-Resistant Staphylococcus Aureus), and VRE (Vancomycin-Resistant Enterococcus).

For these reasons, medical honey dressings have gained recognition in the global academic community in the last years[10,11]. The antimicrobial properties of honey are derived from the osmotic dehydration mechanism, the reduction of pH levels to approximately 3.0-4.0[12,13], and the hydrogen peroxide[14]. Per se, honey exhibits water solubility and can be readily rinsed away, even when applied to cavities such as cysts or stage IV lesions[9]. Medical honey dressings can be used alone or in combination with other medicines such as calcium alginate[15].

The fields of application of the medical honey are (i) chronic wounds ulcers, (ii) stoma-therapy, and (iii) burns. Regarding (i) chronic wounds ulcers, medical honey dressings are used to avoid the replication of bacteria and accelerate wound healing[7]. They prevent the formation of biofilm16 because the honey recall macrophages, which are responsible for the removal of devitalized and/or necrotic tissues from the wound bed[7,16,17]. In cases of wounds with moderate to heavy exudate, it may be necessary to utilize a secondary dressing to manage the infiltration of diluted honey from the primary dressing[9]. Furthermore, a recent meta-analysis revealed that the utilization of honey dressing on diabetic foot ulcers led to a significantly increased rate of wound healing (OR, 2.06; 95% CI, 1.45-2.93, $p<.001$) and lower wound healing time (MD, −10.42; 95% CI, −16.27-−4.58, $p<.001$)[18]. Finally, medical honey dressings reduce the average time needed for wound healing (Hedge's g: -0.81), patients' length of hospital stay (-3.1), and VAS score (-1.2) as compared with the povidone iodine-based dressings[19].

Regarding (ii) stoma-therapy, Manuka honey is used in association with hydrocolloid for the protection of the peristomal skin[20]. In detail, medical honey dressings have a double action that is to maintain healthy skin and healing damaged skin20. In fact, around 80% of people with stomas experience skin problems, and medical honey dressings can help in reduce inflammation, moisturizes the skin, and add a balance protection[21]. The implementation of measures to minimize skin damage in ostomy care has the potential to yield significant benefits in terms of reducing patient distress, minimizing product consumption, and optimizing nursing efficiency[20].

Regarding the use of honey on (iii) burns, it has been documented that honey dressings can hasten healing in superficial and intermediate partial thickness burns[22]. The empirical evidence demonstrates that honey possesses wound healing capabilities, which encompass the facilitation of tissue growth, promotion of epithelialization, and mitigation of scar formation. The aforementioned benefits can be attributed to various factors associated with honey, including its acidity, hydrogen peroxide concentration, osmotic action, nutritional and antioxidant contents, stimulation of immunity, as well as other undiscovered chemicals[23].

We can conclude that the future's challenge entails the exploration of novel resources are rooted in our historical past. In fact, as we said, the use of medical honey dressings offers numerous advantages in wound care and healing. Apart the

already noted antimicrobial properties, wound debridement, anti-inflammatory effects, moist wound healing, promotion of granulation tissue formation, minimization of scarring, autolytic debridement, and suitability for treating chronic wounds, medical honey dressings could provide other five important implications that at this stage are underdeveloped.

First, medical honey dressings could be an alternative care for individuals experiencing antibiotic resistance as a crucial area of concern in the field of healthcare. Second, honey dressings are relatively easy to apply, and they conform well to irregular wound shapes making them more suitable for various types of wounds. Third, while medical honey dressings might be more expensive than some traditional dressings initially, they can potentially reduce overall treatment costs by promoting faster healing and shorter hospital stays. Fourth, medical honey has a long shelf life, making it a practical option for wound care in various healthcare settings. Finally, medical honey dressings could be used even in countries with high financial constraints that hinder their ability to procure advanced wound dressings, because of the easier access to honey.

In conclusion, medical honey dressing proves to be a crucial and valuable treatment option, harnessing the remarkable therapeutic properties of honey. The promising results and potential benefits of medical honey dressing call for further comprehensive research and clinical studies. By delving deeper into its mechanisms of action, exploring its efficacy in diverse wound types, and investigating its long-term effects, future studies can unlock the full potential of medical honey dressing. Such research endeavors will not only advance our understanding of this remarkable treatment but also pave the way for its widespread adoption and integration into mainstream medical practices, ultimately improving patient care and outcomes.

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