Clinical Review Criteria

Medihoney Dressing for Wound Management (Medihoney Primary Dressing with Active Manuka Honey, Derma Sciences Medihoney Dressing with Active Manuka Honey)

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Criteria

See the wound care treatment criteria.

Background

Honey has been used in wound care for thousands of years. The ancient Egyptians, Greeks, Romans, Chinese, and other early cultures used it as a remedy for wounds either alone or in combination with other ingredients. Its healing benefits were passed from generation to generation, and honey is still traditionally used in many parts of the world. Recently there has been a resurgent interest by the medical profession in using topical honey for wound treatment, mainly due to the increasing number of bacterial strains developing resistance to antibiotics. It is only in the last few decades that researchers started to investigate honey's mechanism of action in wound healing (Molan 2008, Lay-flurrie 2008).

Honey is a viscous supersaturated sugar solution derived from nectar gathered and modified by the honeybee. It contains approximately 30% glucose, 40% fructose, 5% sucrose, 20% water and many other substances as amino acids, vitamins, minerals, and enzymes. In-vitro and animal studies indicate that honey has several therapeutic potentials. Its high osmolarity due to the sugar content causes bacterial cell wall shrinkage and inhibition of growth. Many bacteria grow and multiply in a neutral pH environment (6.5-7.0), and cannot thrive in the acidic pH of honey which ranges from 3.2 to 4.2. Researchers have reported that it in addition to its antibacterial properties, honey enhances tissue growth by drawing fluid from the underlying circulation providing both a moist environment and topical nutrition to the tissues. They also found that honey leads to cytokine release, promote autolytic debridement, deodorize malodorous wounds, and stimulates anti-inflammatory activity that reduces pain, edema, and exudate, and minimizes scarring (Molan 1999, Sato 2000, White 2005, Bell 2007).

There are many different types of honey but the Manuka honey, a monofloral honey derived from the leptospermum tree species known as tea trees in Australia and New Zealand, has received particular interest for wound healing. Some researchers claim that it has a broad spectrum antibacterial activity and is exceptionally effective for several bacterial species that commonly infect surgical wounds as Staphylococcus aureus and Pseudomonas aeruginosa (Lusby 2002, Visavadia 2008).

Therapeutic honey is typically raw and does not undergo heat treatment like culinary honey. It is sterilized by gamma irradiation which destroys any bacterial spores while retaining its biologic activities.

Derma Sciences Medihoney Dressing with Active Manuka Honey received FDA approval for providing a moist environment conducive to wound healing. These are tulle dressings comprised of 95% Active Manuka Honey and 5% calcium alginate, and are offered in several sizes including 0.5, 1, and 1.5 ounces. According to the FDA, Medihoney dressings are indicated for the management of light to moderately exuding wounds as: diabetic foot ulcers, venous or arterial leg ulcers, partial or full thickness pressure ulcers/sores, first and second partial thickness burns, and traumatic and surgical wounds. Honey dressings should be avoided in patients with a known history of allergy to either honey or bee venom. It was also reported (Lay-flurrie 2008) that patients with diabetes should have their blood sugar monitored as they may be at higher risk of hyperglycemia due to the sugar content of honey.

Medical Director Clinical Review and Policy Committee

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| 12/1/2008  | To date, there are no published high quality studies to support the use honey in wound dressings. Jull and colleagues performed a systematic review (Cochrane review) of 19 randomized and quasi-randomized trials to determine the efficacy of honey on the healing of acute and chronic wounds. The meta-analysis had generally valid methodology. However, its strength is only as good as the trials it includes, and the majority was of low methodological quality. Moreover, 11 of the 19 studies were conducted by one and the same author in a single center. There was significant clinical and statistical heterogeneity between the studies which did not enable pooling of the results in the meta-analysis. Overall, the results of subgroup meta-analyses only showed a significant benefit of honey dressings (2 trials, n=992) in reducing time to complete healing of mild to moderate partial thickness burns vs. conventional dressings. The Jull et al’s RCT, 2008 compared the effect of Manuka honey dressings to usual care for the treatment of venous ulcers. It was randomized, controlled and multicenter, and analysis was based on intention to treat. However, the trial was open-label, and a range of dressings were used in the control group, which are potential sources of bias. Its results showed no statistically significant differences between the honey dressing and the usual care in rate or time to complete healing. On the other hand, honey dressings were associated with significantly higher rates of overall adverse events, ulcer pain (NNH=7), and ulcer deterioration (NNH=10).

Gethin and colleagues’ trial compared Manuka honey to hydrogel dressings used for the treatment of venous ulcers. The trial was unblinded, small, and did not recruit the predetermined number of patients required to provide sufficient statistical power. The results of the trial showed no statistically significant differences between the Manuka honey and hydrogel therapy in desloughing the wound (percent of wound area covered by slough), or rate of

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slough removal in venous ulcers at 4 weeks. There was however, a higher rate of ulcer healing in the Manuka honey group (44%) vs. the hydrogel group (33%) with a risk ratio of 1.38, and NNT =9 in 12 weeks. The authors did not discuss how they defined wound healing.

Conclusion:

• There is insufficient good quality evidence to determine whether the use of Medihoney dressings would improve the rate of healing in acute wounds as burns and traumatic wounds.

• There is insufficient evidence to determine whether the use of Medihoney improves the rate of healing in chronic wounds including venous ulcers, arterial ulcers, diabetic ulcers, and pressure ulcers.

### Evidence/ Source Documents

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| 12/1/2008                 | The search revealed over 120 articles on the use of honey for wound care. The number of published articles dropped to just over 20 articles when the search was limited to Manuka or Medihoney. Many were review articles or opinion pieces on the benefits of honey in wound management. There was a Cochrane review on honey as a topical treatment of wounds, and a number of RCTs on the use of honey in the treatment of acute wounds due to burns. The majority of the latter trials were conducted in one center, and by one and the same author.

The literature on the use of honey for chronic ulcers was limited. There were three RCTs on honey dressings for venous ulcers, two of which were conducted by the same investigators (Gethin and colleagues 2008) among the same group of patients, but reported different outcomes. No randomized controlled trials on the use of honey in diabetic foot ulcers, ischemic, or pressure ulcers were identified. There were only very small non-randomized trials, case series and case reports. The Cochrane review and the three trials on the use of honey for venous ulcers were critically appraised:


Gethin G, Cowman S. Manuka honey vs. hydrogel –a prospective, open label, multicenter, randomized controlled trial to compare desloughing efficacy and healing outcomes in venous ulcers. J Clin Nurs 2008; August 23 See [Evidence Table](#).

Gethin G, Cowman S. Bacteriological changes in sloughing venous leg ulcers treated with Manuka honey or hydrogel: an RCT. J wound Care 2008;17:241-247 See [Evidence Table](#).