Manuka Honey Preventing Infections

Is Manuka honey an effective antimicrobial dressing for non-infected wounds, that prevents infection and the need for oral antibiotics?

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Introduction

Antibiotic resistance is a broad term used to describe when different microorganisms begin resisting common treatment methods (New Zealand Government, 2017). This resistance is a major concern, as common infections may become untreatable and could be spread rapidly to others. Antimicrobial resistance also makes surgeries high risk. New Zealand has comparatively low rates of antimicrobial resistance compared with the rest of the world, however, there has been increased instances of resistance by some infections and there has been an increase in antimicrobial use (New Zealand Government, 2017).

I became interested in the alternate preventative methods being used after being in a primary health care unit and seeing the methods that were used to treat possibly infected wounds, usually a course of antibiotics. I wanted to see what other methods that were available.

The anti-bacterial properties of Manuka honey

* Raw honeys restrict microbial growth due to their low pH, and the osmolarity of the honey forms an acidic environment (Cooper and Jenkins, 2012).
* Manuka honey has multiple inhibitory effects that help prevent infections of methicillin-resistant *S. aureus* (MRSA), in colonised wounds and limit cross infection between patients (Cooper and Jenkins, 2012).
* The higher concentration of hydrogen peroxide correlates to a higher antimicrobial activity rate (Mandel and Mandel, 2011).
* Manuka Honey has lower levels of hydrogen peroxide. It compensates with methyl glyoxal (MGO). MGO reacts non-specifically with DNA, and RNA molecules. How it selects bacteria over its host cells in this form of select toxicity is not known (Carter, Blair, Cokcetin, Bouzo, Brooks, Schothauer and Harry, 2016)

The role of anti-microbial dressings in wound care

* Disinfectants, antiseptics, and antibiotics fall under the umbrella term of antimicrobials, which are agents used to kill microorganisms. Antiseptics are often used to inhibit microorganisms within a wound. (Vowden, Vowden and Carville, 2011)
* An antimicrobial dressing has an agent integrated into it and that will kill bacteria but spare healthy tissue. The dressings help to reduce the risk of the wound being colonised by bacteria and help to reduce the wound from progressing (Beldon, 2014).

Recommendations and Implications

* There is the possibility of common infections becoming untreatable and leading to an increase number of deaths from infections in the future (New Zealand Government, 2017).
* New Zealand has an action plan in effect. The use of Manuka honey as a wound dressing to prevent infections from occurring falls under the third objective of the action plan of infection prevention and control (Ministry of Health and Ministry for Primary Industries, 2017).
* The use of antimicrobial dressings show promise at stopping the spread of local infection, helps to prevent complications, extra costs and a reduction in hospitalisations. By attempting to prevent infections from occurring, it limits the need for oral antibiotics (Vowden, Vowden et al., 2011).
* Medical grade honey is required and as it becomes a more sought after, it can be expected that the cost of honey will rise, due the stricter manufacturing practices that are required ('The use of honey', 2012).
* The recommendations were that public awareness of antibiotic resistance needs to be improved and promoted This involved prescribers having to write the clinical reason for the prescription and public education on antibiotics, such as taking the full course of antibiotics (Degeling, Johnson, Iredell, Nguyen, Norris, Turnidge, and ... Gilbert, 2018).

References

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Rationale:

With the rise in antibiotic resistant bacteria in New Zealand and the knowledge that the overuse and misuse of antibiotics has contributed to this, I decided to research other options that prevented infections. This lead to the research question of "Is Manuka honey an effective antimicrobial dressing for non-infected wounds, that prevents infection and the need for oral antibiotics?" As my topic has already been proven I believe that a poster would be more beneficial as a medium for transferring knowledge and being an educational tool for people on the therapeutic advantages of Manuka honey in preventing infections (Rowe and Ilic, 2009). I believe this poster, appeals to visual learners, along with the evidence-based practice forum is a great way to inform student nurses of other methods of preventing infections. When a poster is presented in the correct format of a flowing design layout, good colour scheme and readability, a succinct message can be conveyed (Rowe and Ilic, 2009). The following is a PECOT table on the research question and articulates my practice issue of the rise in antibiotic resistance and how Manuka honey may help combat this (Schneider and Whitehead, 2013).

PECOT Category	Information related to the Question	Explanation
Population	The population focus is on those patients with wounds, without infections, and wounds that require dressings.	Wounds are at risk of infections and often dressings with anti-bacterial properties are used to help prevent infection. I am interested in seeing if Manuka honey prevents the development of infections.
Exposure (Intervention)	The intervention I will be researching is the use of manuka honey on wounds.	By using Manuka honey as a dressing and monitoring for signs of infections when the dressing is changed, the effectiveness of the intervention can be assessed. The Manuka honey dressing will be used as a first option to prevent infection before using antibiotics. I will research articles that describe how Manuka honey exerts its therapeutic effects of preventing infections.
Comparison/Control	There is no comparison for this research question.	This is due to the focus of the effectiveness of Manuka honey in preventing infections, and not comparing heal time to other dressings. I am interested in seeing if Manuka Honey is an effective antimicrobial.
Outcome	Identify whether Manuka honey is an effective antimicrobial dressing, that prevents the need for antibiotics to be prescribed.	I would like to discover is Manuka honey is a viable alternative option to use on wounds to prevent infections and prevent the need for oral antibiotics.
Time	There is no timeframe for this research question.	The results have a focus on whether an infection will occur or not. Therefore, a timescale measurement is not applicable.

References

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