

Is Honey the Bees' Knees?

Ailsa Sharp - MSc BA RGN formerly Tissue Viability Nurse; **Margaret Murray** - MSc FIMBS Senior Specialist Biomedical Scientist; **Helen Dorrance** - MB ChB FRCS (Gen Surgery) Consultant Surgeon. All based at the Victoria Infirmary, Glasgow.

Introduction

This study was designed as a pilot to evaluate the efficacy of using honey in place of the current standard dressings for dehisced wounds in patients who have had abdominal surgery.

Historically honey has been used as an antibacterial agent; recent studies have shown Manuka honey to have high levels of antibacterial activity against many common wound pathogens including methicillin resistant staphylococcus aureus (MRSA)¹. It is also known to have an osmotic effect, which as well as debriding the wound, inhibits bacterial growth, in turn reducing malodour². There is some evidence that honey stimulates the immune response in the wound, increasing activity of lymphocytes and stimulating macrophages to release cytokines, tumour necrosis factor and interleukin¹ and 63.

Aim

To compare the use of honey and silver in surgical wounds with reference to healing time, tissue type, level of exudate, patient comfort, change in tissue type over the four week study time period or to healing.

Method

Forty patients were to be recruited, all having surgical abdominal wounds that had dehisced, identified by the surgical teams in the hospital. Patients who joined the study were allocated to either the control (silver) or the study group (honey) through a sealed envelope system. Data collected included type of surgery; patient demographic details; wound characteristics (erythema, exudate levels and tissue type); whether the patient was receiving antibiotic therapy; photographs; ease of application and removal of dressings and pain.

Data collection points were at the start, then weekly for four weeks or to healing, whichever was sooner.

Bacteriology wound swabs were taken at each time point and these will be the subject of another report.

Results

Twenty patients were recruited when enrolment closed, 12 to the study group (honey) and 8 to the control (silver) group. Ten were male (50%), ten were female (50%), the ages ranged from 18 to 77 years, 12 patients were under 65 years old (60%), 8 patients were over 65 years old (40%) see Table 1.

Fifteen patients (75%) completed the study (3 lost to follow up and two patients died of unrelated problems). One patient was withdrawn at week 3 at the patient's request. Three patients (15%) had surgery that did not enter the bowel, 17 patients (85%) had surgery that did enter the bowel. Exudate levels were higher in this latter group of patients throughout the study (Tables 2 and 3).

At the start of the study, exudate levels in the honey group, 17% of patients reported high levels of exudate, 33% moderate levels of exudate and 50% low levels of exudate. In the silver group none reported high levels of exudate, 88% had moderate levels of exudate and only one patient had low levels of exudate at the start - see Table 4.

By the end of the study no patients receiving honey were experiencing high levels of exudate and four patients (57%) reported no exudate. In the silver group one patient (14%) was experiencing high levels of exudate, two patients moderate levels of exudate (28%) and four patients (58%) still had low levels of exudate (Table 5).

Table 1: Age and sex of patients

		Sex of subject		Total
		Male	Female	
Age groups:	Under 65	5	7	12
	65 and over	5	3	8
Total		10	10	20

Table 4: Exudate level at start

		Exudate level baseline			Total
		High	Moderate	Low	
Primary dressing applied:	Honey	2	4	6	12
	Silver	0	7	1	8
Total		2	11	7	20

Table 2: Exudate levels by type of surgery start

		Exudate level			Total
		High	Moderate	Low	
Type of surgery:	Clean	0	2	3	3
	Dirty	2	9	6	17
Total		2	11	7	20

Table 5: Exudate level week 4

		Exudate level at week 4				Total
		High	Moderate	Low	None	
Primary dressing applied:	Honey	0	2	1	4	7
	Silver	1	2	4	0	7
Total		1	4	5	4	14

Table 3: Exudate levels by type of surgery week 4

		Exudate level				Total
		High	Moderate	Low	None	
Type of Surgery:	Clean	0	1	1	0	2
	Dirty	1	3	4	4	12
Total		1	4	5	4	14

Table 6: Highest pain scores at dressing change

	Start	Week 1	Week 2	Week 3	Week 4
Honey	8	7	10	4	2
Silver	7	7	4	4	3

During the study all wounds improved, of the 14 patients who completed the study period the tissue either improved (13 patients, 93%) or remained the same (1 patient, 7%). Of the four patients who healed completely in the study period, all were using honey. Five patients (25%) were receiving antibiotic therapy at the start of the study, all completed by week 1; none had to have antibiotics commenced during the study period as a result of wound infection, though one patient was prescribed antibiotics by his general practitioner for a chest infection.

Pain scores were noted using a visual analogue scale of 0 – 10 with 0 being no pain and 10 being high levels of pain. Both groups experienced some pain, which was not unexpected, though by week 4, six patients (84%) in the honey group had no pain and four patients (57%) reporting no pain in the silver group (Table 6).

Surrounding skin was not an issue during the study, with the exception of one patient who had reacted to all adhesive dressing tried prior to the study; this settled quickly using an absorbent pad and tape as a secondary dressing.

All dressings were reported as easy to use and remove by nursing staff.

Discussion

Patients were very receptive to the idea of using honey in wound management and happy at the prospect of using a natural product.

Numbers were small in this study; however, interesting trends were noted and should be followed up in a future larger study. The patients recruited to the study were typical of the age and type of surgery found in the hospital's surgical wards.

Honey is reported to increase the level of exudate as it has an osmotic influence on the wound. The management of exudate is an issue with some wounds and indeed during this study managing exudate was, at times, a problem. Current standard foams were not able to absorb the levels of exudate produced in the study patients without being changed several times a day. An alternative secondary dressing was sought and a super absorbent pad was used with success and was considerably cheaper per unit cost (Eclipse[®], Advancis Medical, Nottingham, UK). Despite the high levels of exudate during the study, by week 4, the honey group had more patients with no exudate than the silver group.

Now that other Manuka honey dressing types are available on drug tariff in the UK, nurses will have more choice for the optimum method of applying Manuka honey to the wound and managing the exudate rather than relying on the tulle dressing as in this study.

No patient developed a wound infection during the study. The number of patients was small, but this is still encouraging as infection is of great concern in the NHS. A further presentation is planned using the results of the wound swabs taken in the study, looking at the flora contained in the wounds and the changes over time within the two groups of dressings.

Pain is often cited as a reason for caution when using honey. All patients were advised that there have been reports of discomfort when using honey in wound care. No patient withdrew from the study as a result of pain at the dressing change. Indeed the pain scores may have more to do with the dressing technique as one patient reported high pain scores 'depending on who was changing the dressing rather than the dressing itself'. In the author's experience pain can be a concern, however, explaining the potential to the patient and how it settles within a short period of time is often enough to allay fears. While managing exudate was not an issue once the alternative secondary dressing was

found, maceration and excoriation can be a problem with highly exuding wounds. This was not encountered in this study, in the one patient who had a history of skin reactions (to the dressing, adhesive or exudate or combination of the above) all reactions settled very quickly, despite exudate discharging on to the skin.

Limitations

Recruitment of subjects was undertaken by one researcher and consequently when the researcher was on sick leave, two patients were lost to follow up and potential subjects were not recruited. More subjects would have been recruited, however, the researcher left the post and so recruitment stopped. The camera for recording wound photographs was stolen during an office break-in at the hospital and so some photographs were not obtained.

Acknowledgements

Staff in the Victoria Infirmary in Glasgow were invaluable in identifying patients and continuing the nursing care of these patients, particularly with wound management following the protocol in the study. Some patients were discharged to the community and district nursing staff were also very helpful in following the study protocol for wound management.

The cost of bacteriology swabs was absorbed by the Microbiology Laboratory.

Honey dressings were supplied free of charge by Advancis Medical (Nottingham, UK) but the company had no other input into the study.

References

1. Cooper, RA, Molan, PC, Harding, KG. (1999) Antibacterial Activity of Honey Against Strains of *Staphylococcus aureus* from Infected Wounds. *J R Soc Med.* 92:6 283-285.
2. Douglas, V. (2001) Living with a Chronic Leg Ulcer: an insight into patients' experiences and feelings. *Journal of Wound Care* 10 355-360.
3. Molan, PC. (1999) The Role of Honey in the Management of Wounds. *Journal of Wound Care* 8 (8) 415-8.