Topical Honey – A Cost Effective Option For Wound Management

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Abstract

Introduction: A wide range of dressing materials is available for management of wounds . But in economically deprived areas, where people can hardly afford the modern medicines, honey which is cheaply available and easy to use, can still play an important role. Materials and methods: The study was done prospectively in a tertiary care health facility over a period of two years and six months from Nov. 2006 to Apr. 2009 in 56 patients in whom wounds of various etiologies were managed with topical application of honey. Results: Inability of the patients to purchase the newer and costly dressing material was the commonest indication for use of honey. In none of these patients, was a failure of therapy experienced and in 16 (29%), honey was found to be superior to other commonly used medications. Conclusion: Honey can be cheaply, safely and effectively used for management of wounds.

INTRODUCTION

Ever since his creation, man has been getting wounded and has been devising methods and medications for managing these wounds. Honey is one such natural product which is mentioned in various ancient books as panacea for wide range of ailments, the wound management being one such indication. But in the recent decades due to evolution of wide range of medications and dressings, use of the traditional methods of treatment like honey became less frequent and even many studies questioned the validity of using honey in presence of modern drugs. But in economically deprived areas, where people cannot afford the modern drugs and dressings, honey which is cheaply available and easy to use, can still play an important role .

MATERIALS AND METHODS

This study was conducted prospectively the Department of General surgery of the medical college of Sheri Kashmir Institute of Medical Sciences, Srinagar, J&K, India from Nov 2006 – Apr.2009 . All the patients in whom honey was the sole medication for management of wounds were included in the study. The cases which received any other form of local or systemic antibiotic in addition to topical honey were excluded from the study. Before considering any patient for the study, the patients were properly counseled and all the available alternative modes of wound management were explained to them. The honey applied was a locally available floral honey. It was applied as a thick layer and changed after every 1-4(mean-2) days depending on the nature of the wound. Debridement of the wounds was done in third degree burns and sacral pressure

ulcer whereas in the parietal wall abscess, incision and drainage of abscess was done before application of honey. In one case of third degree burn with area above 10%, skin reconstruction was also required.

RESULTS

A total of 56 patients suffering from wounds of different etiologies were treated over a period of two and a half years with topical application of honey as is evident from Table 1 and 2. 46 cases had burn wounds and 10 cases had wounds caused by other causes.

Figure 1

Table 1: Profile of non burn patients treated with topical honey

No	Age	Sex	Nature of wound	Co morbidity	Microbes cultured	Drug sensitivity	Indication for use	Duration of treatment (days)
1	36	M	Post laparotomy wound infection	none	Staph. Aureus, E.coli	P.t, Cp.,Mr	Drugs not affordable	6
2	28	M	Sacral pressure ulcer	paraplegia	E.coli	P.t, Im., Cp.,Mr	Drugs not affordable	92
3	49	M	Parietal wall abscess	Diabetes	Pseudomonas, staph aureus	P.t., Ak	Adverse effects to drugs	8
4	53	M	Post appendectomy wound infection	Diabetes, ischemic heart disease	Staph. Aureus, Acinetobacter	None	Resistant to all available drugs	7
5	34	M	Post laparotomy	None	Staph aureus	P.t, Cp.,Mr	Drugs not affordable	5
6	19	M	Diabetic foot	none	Streptococcus pyogenes	Cf. P.t, Cp.,Mr	Drugs not affordable	19
7	61	F	Abrasion over face	Bedridden, old stroke	Pseudomonas,E.coli,acinetobacter	P.t, Cp.,Mr	Drugs not affordable	11
8	51	M	Chronic ulcer over foot	Chronic arterial insufficiency	Not available	-	No response to treatment	29
9	31	F	Breast abscess	None	Staph aureus	Am/clav	Drugs not affordable	5
10	36	M	Perianal abscess	none	Staph. Aureus	P.t, Cp.,Im,Cl	Drugs not affordable	4

Am/clav- amoxicillin-clauvanic acid, P.t. –Piperacillin/Tazobactum, Cp. –Cefipime, Cf-ceftazidine, Ak.-Amikacin, Mr.-Meropenam, Im.-Imipenam, Cl.-Colistin

Figure 2

Table 2: Profile of burn patients treated with topical honey

Nature of burns	No of patients			Documented wound infection	Indications of use			Mean Duration of treatment	Adverse effects/ failure
	Male	Female	Total		A	B	C		
Ist degree	12	16	28	2	21	6	1	4	1
2nd degree(<5%BSA)	4	2	6	1	4	2		7	-
2nd degree (5-10%BSA)	1	4	5	2	3	1	1	7	-
2nd degree (>10%BSA)	-	3	3	-	2	1	-	8	-
3rd degree(<5%BSA)	2	1	3	1	1	2	-	11	-
3rd degree (5-10%BSA)	-	-	-	-	-	-	-	-	-
3rd degree (>10%BSA)	1	-	1	-	1	-	-	12	-
Total	20	26	46	6	32	12	2		1

A-Other dressings not affordable B- Other dressings uncomfortable C -Other dressings not effective

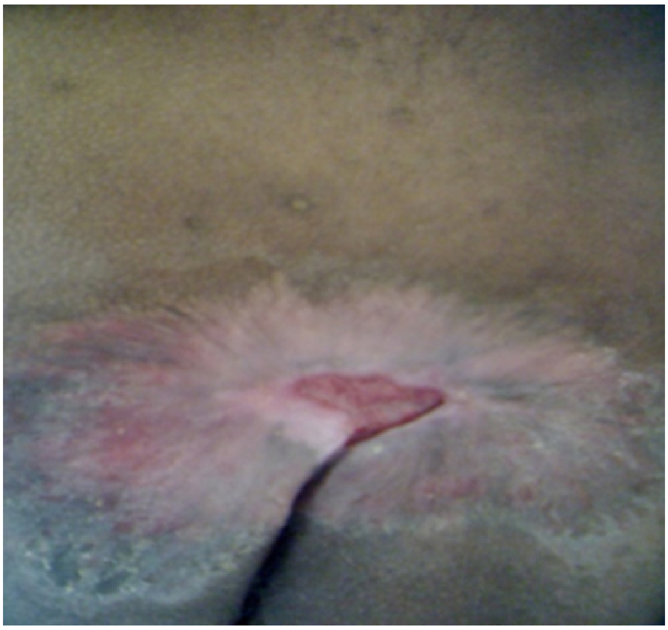
As is evident from Table 1 & Table 2, in 39(70%) cases, the reason for adopting topical honey as sole management tool was the inability to afford the prevalent antibiotics and dressings. In rest of 17(30%) cases honey was used as patients had either found other drugs ineffective or uncomfortable. All the patients healed including one chronic leg ulcer in which all other modalities had healed. Only one female patient of 1st degree burns felt mild tolerable stinging sensation as the adverse effect.

Figure 3

Fig 1 : Sacral pressure ulcer in a paraplegic male

Figure 4

Fig 2 : Same ulcer as in Fig 1 two months after bedside debridement and topical honey application



DISCUSSION

The use of honey for wound management is mentioned in many ancient written records. [1-4] But in recent decades, with the evolution of ever increasing number of dressing materials and antibiotics, honey as a primary medicine has been less commonly described. But as the resistance to antibiotics evolved [5] , traditional medicines as honey are again making a comeback [6] . We were however compelled into using honey which is cheaply available in Kashmir - a sub Himalayan valley, due to the fact that most(70%) of our patients could not afford the modern medicines and had but no other options. The results however were encouraging with 100% wound healing rate and virtually no adverse affects.

Honey has been found to inhibit the growth of about 60 species of bacteria including aerobes and anaerobes, gram-positives and gram-negatives [7-8] . Besides an inhibitory action has also been observed for some fungi and species of Aspergillus and Penicillium and against most of the common dermatophytes. [9]

As far as the mechanism of action is concerned, various studies ascribed the antibacterial action of honey to its high osmolarity due to the high sugar content. [10-12] Besides honey has been shown to contain a factor called inhibine which leads to release of hydrogen peroxide which in turn inhibit bacterial growth . [13] Besides some workers have also identified additional non-peroxidase antibacterial factors in honey. [14, 15]

At the cellular level, it is proposed by some workers that the glucose content of honey and the acidic pH (pH value of honey is 3-4) may assist in the bacteria-destroying action of macrophages. [16] Other studies have shown that the proliferation of peripheral T-lymphocytes and blood B-lymphocytes in cell culture is stimulated by honey at concentrations as low as 0.1%; and phagocytes are activated by honey at concentrations as low as 0.1%. [17] Honey (at a concentration of as low as 1%) also stimulates monocytes in cell culture to release cytokines, tumour necrosis factor (TNF)-alpha, interleukin (IL)-1 and IL-6, which activate the immune response to infection. [18]

In our experience we found honey to be effective in wide range of wounds including burns and non healing ulcers. In literature also, honey has recently been used effectively against simple as well as very difficult to treat wounds like Fournier's gangrene, [19] burst abdomen, [20] infected burns, [21] neonatal soft tissue infections, [22] chronic ulcers [23] and fungating breast carcinoma. [24]

As the incidence of drug resistance increases, it is expected that cheap drugs like honey will find its due place [25] and will rather be used as a frontline wound management . [26] Some randomized controlled trails have already prove honey to be more effective than many of the currently and widely used dressing materials . [27,28] In fact in economically deprived areas (like our Kashmir valley) where people are struggling to acquire even meals and can by no means afford expensive medicines, honey can be used cost effectively to treat wounds. Workers have however stressed the need to verify and standardize the quality of honey as is done in case of other medicine keeping in view the findings that honey though does not allow the growth of bacteria [29] but some spores may survive which can be sterilized with gamma irradiation. [30]

CONCLUSION

From our personal experience of using honey in 56 patients over a period of two and a half years and from the review of available literature, it is concluded that honey can be safely, effectively and very cheaply used for the management of wounds.

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