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A Study to Compare the Effects of Honey and Saline Dressing in the Wound Healing of Chronic Foot Ulcers

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Abstract : *Management of chronic ulcers require dressing, many times a day. The aim of dressing is to protect from contamination, infection and injury, absorption of drainage from the ulcer, and immobilization of the wound. This study is a comparative trial among patients admitted with foot ulcer in General Surgery wards in Madurai Medical College, Madurai. The number of patients included in the study was 80, Out of which 40 were in the test group and 40 were in the control group. Study duration was 1 year both the test and control group were matched regarding their age, diabetic status, nutritional status, and grade of ulcer. There is no Significant difference between the two groups regarding baseline ulcer size and area of necrotic tissue. The reduction of slough is as early as 3rd week in the test group than the control group. The number of patients with 75-100% wound filled with granulation tissue is as early as 3rd week in test group than the control group where it took more than 4 weeks. The number of patients who underwent secondary suturing, skin graft and flap are significantly higher and also as early as 3rd week in test group than the control group.103Our study concluded that Honey is an effective topical applicant in faster reduction of slough, regeneration of granulation tissue and Re-epithelisation in chronic foot ulcer. This helps in faster wound bed preparation for healing, suturing, skin graft and Flap.*

Keywords: *Dressing, Honey, Saline, Ulcer, Wagner's grading*

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I. Introduction

Chronic Ulcers pose significant and challenging health as well as economic problems, as it needs long term surgical and nursing care whether it is á Burn wound, Diabetic ulcer, Decubitus ulcer, or even otherwise. Ulcers are also susceptible to complications like infection and thus sepsis and limb loss. Management of chronic ulcers require dressing, many times a day. The aim of dressing is to protect from contamination, infection and injury, absorption of drainage from the ulcer, and immobilization of the wound. Many agents have been used according to interest like saline, Betadine, Dakin's Solution, Acriflavin, Bactatin and various antibiotic solutions. Honey, an ancient remedy for ulcer and wound dressing have been rediscovered and is increasingly being used as it seem to reduce the inflammation, edema and odour causes the sloughing of necrotic tissue[1], and has significant osmotic and antibacterial properties[2]. It also has high acidity, antioxidant properties and high hydrogen peroxide content. The other advantages are that it has no systemic or local adverse effects and has higher cost effectiveness on comparing with other antibiotic solutions. It provides á moist healing environment and its viscosity acts as á barrier to prevent cross infection of wounds. The study aims at comparing the effects of commonly used saline dressing and honey dressing in chronic foot ulcers [3], in patients who are in the surgical wards of Government Rajaji Hospital, Madurai.

II. Aims And Objectives

To study the Efficacy of Application of Honey Dressing in the management of Chronic Foot Ulcers and to compare the results over the conventional method of Saline Dressing.

III. Materials And Methodology

This study is a prospective parallel group and comparative trial among patients admitted with foot ulcer in General Surgery wards in Madurai Medical College, Madurai. The number of patients included in the study was 80, Out of which 40 were in the test group and 40 were in the control group. Study duration was 1 year. (August 2013 - August 2014)

Materials used were Normal Saline, Sterilized Honey

3.1 Inclusion criteria
Patients aged more than 20 years with foot ulcer of any Etiology. Ulcers of Wagner's Grade II – IV.

3.1.1wagner classification of diabetic foot lesions
Grade 0- at risk foot no obvious ulcer, thick callus, prominent metatarsal heads, claw toes or any bony abnormality.
Grade 1- superficial ulcer, not clinically infected.
Grade 2- deeper ulcer, often infected but no bone involvement.
Grade 3- deep ulcer, abscess formation, bony involvement.
Grade 4- localized gangrene.
Grade 5- gangrene of the whole foot

3.2 Exclusion criteria
Clinical Signs of infection, Cellulites. Ulcers of Wagner's Grade V. X-ray showing Osteomyelitis. Doppler showing gross atherosclerotic arterial changes and venous abnormalities like Varicosities. Malnutrition poorly-controlled Diabetes. Other clinically significant medical conditions that would impair wound healing such as various renal hepatic hematological neurological immunological disorders. Patients on corticosteroids Immunosuppressive drugs radiation and chemotherapy for the last 1 month prior to entry into the study were excluded from the study

3.3 Methods
The selected patients underwent screening for a period of one to two weeks, to stabilize the wound and institute appropriate medical and surgical line of treatment like diabetic control, control of infection by initiating appropriate antibiotic based on culture sensitivity report, surgical debridement, correction of anemia and correction of other medical illness. After the initial screening period the eligible patients who required bed side debridement were divided randomly into test group and control groups. Test Group received Honey dressing with bedside surgical debridement when ever required for wounds/ulcers which had slough in the floor and till granulation tissue appeared[4]. Control Group received bedside surgical debridement with conventional normal Saline dressing. The test medication was applied to test group once every day, making use of á a tongue depressor, medication was applied over entire surface the slough and only superficial slough was removed using bed side surgical debridement when ever required[5].
Treatment of control group was done with bed side surgical debridement whenever required and conventional Normal Saline dressing, Wounds are treated one-time daily till complete debridement or up to 7 Week. The content of necrosed tissue, amount of granulation tissue, overall wound response was assessed all weekly using a visual score.

3.3.1 The visual scores are as follows
The score for the percentage of wound covered by slough and non-viable (necrotic) tissues are
1.76-100% wound was covered with necrotic tissue.
2. 51-75% wound covered with nonviable tissue.
3. 26-50% wound covered with nonviable tissue.
4. 11-25% wound covered with nonviable tissue.
5. 0-10% wound covered with nonviable tissue.
6. No Necrotic Tissue

The score for the percentage of wound covered by granulation tissues are
1. No Granulation
2. < 25% of wound covered by Granulation Tissue
3. 25-74% of wound covered by Granulation Tissue
4. 75-100% of wound covered by Granulation Tissue
The reduction of wound size and area measured in square centimeters. The final parameters and wound characteristics of the two randomized groups were analyzed using statistical methods and compared

IV. Results

4.1 Age distribution
Most of the patients fell in the age group between 40 years to 70 years. The mean ± SD for Test Group is (57.0 ± 14.85) and control is (55.5 ± 14.45). So, age distribution is statistically similar between the two groups with $P > 0.05$.

4.2 Sex distribution

The male and female ratio of the test group is 62.5%: 37.5% and the control group is 67.5%: 32.5%. Hence sex distribution is statistically similar between the two groups with P > 0.05.

4.3 Diabetes mellitus status

Most of the patients in Test Group (85%) and Control Group (75%) had previous history of diabetes mellitus. The group without diabetes are only 15% and 25% in Test and Control groups respectively. It is observed in our study most of the patients presented with Diabetes Mellitus of duration with Mean ± SD of test group 9.77 ± 6.94 and Control group 10.29 ± 5.61, thus showing long duration of diabetes mellitus patients are prone for diabetic Foot Ulcers.

4.4 Ulcers

The mean size of the ulcer was 9.82 to 10.32 cm. the mean ± sd of the size of ulcer in test group (9.82 ± 6.80) and in control group (10.32 ± 6.39) is statistically similar between the two groups with p > 0.05. Most of the patients had Grade III and IV Ulcers in both Test and Control groups.

The grade of ulcer is statistically similar between the two groups.
The number of patients with no necrotic tissue [6] are significantly higher in the test group at 3rd week follow up (P< 0.001), at 4th week (P < 0.001), at 5th week (P< 0.001), at 6th week (P < 0.001) and at the 7th week (P <0.01) when compared to control group as per the Chi-square / Fisher Exact test.
The number of patients with 75-00% wound filled with granulation tissue are significantly higher in Test group at 3rd week follow up (P<0.001), at 4th week (P < 0.001), at 5th week (P<0.001), at 6th week (P<0.001) and at the 7th week (P<0.05) when compared to control group as per the Chi-Square / Fisher Exact test.

4.5 Wound surface area

The number of patients with No wound surface (Nil) are significantly higher in Test group at 3rd week follow up (P< 0.05), at 4^{th} week (P <0.05), at 5th week (P < 0.05), at 6th week (P < 0.001) and at the 7th week (P<0.001) when compared to control group as per the Chi-square / Fisher Exact test.
4.6 Split Skin Grafting Patients in test group are subjected to the skin graft as early as 3^{rd} week, were as the patients in control group underwent skin graft only in 5th week. At the end of 6th week totally 21 patient in test group underwent S.S.G compare to the control group were only 3 patients.

V. Conclusion

The patients treated with Honey dressings had faster reduction of slough / necrotic tissue and increased granulation tissue. This study demonstrated that Honey dressings along with bed side surgical debridement had cumulative effect in reduction of slough, increase granulation tissue and faster wound bed preparation.
The test group patients had increased growth of the granulation tissue along with epithelisation which is generally correlated with the development of a granulating wound bed. All this are done with visual score. Hence it was not possible to determine if the granulation tissue production was actually increased after treatment or if just more granulation became visible after debriding the ulcer but patients in honey group produced better results. They also experienced less pain than the control group because the need for the bed side surgical debridement is less

The honey group patients under went skin grafting, secondary suturing and flap as early as 3rd week than control group because of faster wound bed preparation. The wound also healed faster this is due to increased epithelisation

References

[1]. Efem SEE. Clinical observations on the wound healing Properties of Honey. Br J Surg 1988; 75:679-681
[2]. Molan PC, Allen KL. The effect of gamma-irradiation on the antibacterial activity of honey. J Pharm Pharmacol 1996; 48(11): 1206-9
[3]. Subrahmanyam M. Topical application of honey in Treatment of Burns. Br J Surg 1991; 78(4):497-498
[4]. P.S. Baghel, S.Shukla, and R.Randa Á comparative Study toevaluate the effects of Honey dressing and Silver Sulphadiazine dressing in burn patients; Indian J Plast Surg › v.42(2); Jul-Dec 2009
[5]. Suhaimi, Anwar; Hairi, Farizah; Akka, Zainabe Syed; Yusof, Kamaruddin Mohd; The Efficacy of Honey Dressing in Wound Management: A Clinical Observation; Malaysian Journal of Medical Sciences;Jan2007, Vol. 14 Issue 1, p11
[6]. Ndayisaba G, Bazira L, Habonimana E, Muteganya D. Clinical and bacteriological outcome of wounds treated with honey. J Orthop Surg 1993; 7(2): 202-4..

*Kalirathinam. "A Study to Compare the Effects of Honey and Saline Dressing in the Wound Healing of Chronic Foot Ulcers." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) 16.8 (2017): 45-47