

Conventional dressing material versus newer dressing material : A prospective study in Dept. Of General Surgery, Narayana Medical College, Nellore

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ABSTRACT

BACKGROUND: The dressing of wounds is an old art and has undergone a wide variety of changes from ancient herbal dressing to modern dressing materials. An ideal wound care product in addition to control the infection should also protect the normal tissues and must not interfere with the normal wound healing. Various treatment modalities have been discovered over the years in forms of different types of wound dressings like creams, ointments, solutions while other classes of wound dressings are occlusive dressing, non-occlusive dressing, absorptive dressing, skin substitutes and negative suction vacuum dressing. **METHODS:** prospective, observational study carried out in Dept. of General Surgery, Narayana Medical College, Nellore 1st September 2020 to 30th August 2022 in 50 patients divided in two groups. conventional dressing materials (Regime A) and newer dressing materials (Regime B) on random basis. Povidone iodine, H₂O₂, EUSOL and liquid paraffin are the conventional materials which are compared with the newer materials such as oxum, oxoferine, collagen and opsite. **RESULTS & CONCLUSION :** maximum age group between 51 to 60 (23%) years. A total of **17 females** were enrolled during this study, out of which 9 patients were considered in Regime A and 8 patients in Regime B. **33 males** were enrolled in this study, out of which 17 were included in Regime A and 16 in Regime B. The time required for the appearance of granulation tissue by newer dressing materials took 3 days when compared to the conventional dressing materials and finally the time required for the healing ulcer took 4 days early with newer dressing materials compared to conventional dressing materials

KEYWORDS: conventionl dressing, ulcer foot, oxum, opsite, collagen, oxoferine

Introduction: The dressing of wounds is an old art and has undergone a wide variety of changes from ancient herbal dressing to modern dressing materials. The main aim is always to heal the wounds. Wounds and their management are the main fundamentals in the practice of surgery. The prevalence of leg ulceration is approximately 1% to 2% and is slightly higher in the older adult population. Chronic leg ulcers is usually associated with significant morbidity, high cost of healthcare, loss of productivity, and reduced quality of life. An ideal wound care product in addition to control the infection should also protect the normal tissues and must not interfere with the normal wound healing. Various treatment modalities have been discovered over the years in forms of different types of wound dressings like creams, ointments,

solutions while other classes of wound dressings are occlusive dressing, non-occlusive dressing, absorptive dressing, skin substitutes and negative suction vacuum dressing

Methodology:

Prospective, observational study, carried out in Dept. of General Surgery, Narayana Medical College, Nellore, from 1st September 2020 to 30th August 2022 in 50 patients divided in two groups. A total of **50** patients admitted in surgery ward were allotted into two groups – conventional dressing materials (**Regime A**) and newer dressing materials (**Regime B**) on random basis. Povidone iodine, H₂O₂, EUSOL and liquid paraffin are the **conventional materials** which are compared with the **newer materials** such as oxum, oxoferine, collagen and opsite.

Study protocol of the procedure was formed along with Pro forma, Patient Information Sheet and Informed Consent Form. The wounds were thoroughly debrided; dimensions and surface area of ulcers were also assessed. The patients are assessed on daily basis with the following parameters.

1. Ulcer size at the start of the treatment and the changes with the treatment.
2. Rate of granulation tissue formation.
3. Time required for removal of slough if any present.
4. Rate of healing of wound.

Results:

This study included a total of **50 patients** with maximum age group between 51 to 60 (23%) years. A total of **17 females** were enrolled during this study, out of which 9 patients were considered in Regime A and 8 patients in Regime B. **33 males** were enrolled in this study, out of which 17 were included in Regime A and 16 in Regime B. 19% patients were with healing ulcers, 78% patient had non-healing ulcers while 3% had callous ulcers. In **Regime A**, **9 patients** (36%) had ulcer size less than 5 cm, **10 patients** (40%) had ulcer size between 5-10 cm and **6 patients** (24%) had ulcer size greater than 10 cm at time of dressing. In **Regime B**, **9 patients** (36%) had ulcer size less than 5 cm, **8 patients** (32%) had ulcer size between 5-10 cm and **8 patients** (32%) had ulcer size greater than 10 cm at the time of dressing. In **Regime A**, **21 patients** (84%) had ulcer with slough and **4 patients** (16%) had ulcer without slough. In **Regime B**, **22 patients** (88%) had ulcer with slough and **3 patients** (12%) had ulcer without slough. In **Regime A**, **16 patients** (64%) had ulcer with purulent discharge and **9 patients** (36%) had ulcer with non-purulent discharge. In **Regime B**, **18 patients** (72%) had ulcer with purulent discharge and **7 patients** (28%) had ulcer with non-purulent discharge.

Discussion:

It is every surgeon's desire that after dressing the wound should heal without any complications and it's a doctor's responsibility to make sure that the dressing is done effectively. But with the everyday addition of newer dressing material to the existing dressing material, it is necessary to identify the best dressing material for the patient and a detailed study, comparison of these dressing materials is required. In this study, dressing materials commonly used in surgical wards were compared with the newer ones. Their clinical comparison was carried out as conventional and newer dressing materials and no internal comparison of individual material was done.

In present study, all the patients underwent debridement to have a clean ulcer base. According to Bergstorm W, Bennett MA, Cartston CE et al in 1994 and by Goode PS et al in 1995 that the presence of necrotic and devitalized tissue may prevent or delay wound healing. In the present study, men showed increased number of ulcers (65%) as compared to females (35%).

According to Lawerance et al study, which was compared to the present study showed higher incidence of ulcers in male, as they were the breadwinners of the family and were mostly working outdoors which made them more vulnerable for trauma and its sequels. In **Regime B**, there was earlier appearance of granulation tissue(10.88 ± 3.22 days) as compared to **regime A**(13.86 ± 3.22 days).

Study conducted by Kapur V et al on diabetic foot ulcer, chronic leg ulcers patients and acute abscesses which were treated with oxum showed early granulation and epithelialization resulted in earlier resolution of peri-wound erythema and peri-wound edema compared to PI group at a mean of 21 days.

According to Anand A et al when compared the efficacy of oxum versus Povidone iodine (PI) in post C-section wounds, 88% of granulation was seen in 5 days in oxum treated group and 80% in (PI) group in 10 days . 4% patients in oxum group had erythema at surgical wound in 5 days when compared to 12% in PI group. The results were similar to our study although done on ulcers.

According to Goretti C study, Povidone iodine has shown to be an effective antimicrobial agent for the treatment of various conditions and is routinely used for the management of chronic wounds. The significance of faster healing time and shorter duration of antibiotic therapy in patients treated with oxum indicates that oxum has superior antimicrobial activity than Povidone iodine.

In our present study there was sign of earlier wound disinfection in oxum group compared to Povidone iodine group. In regime B early healing stage (16.88 ± 5.35 days) was observed compared to regime A(21.02 ± 5.88 days), which has statistically significant ($p<0.005$)value.

Paola LD conducted a study on 218 patients suffering from chronic diabetic foot ulcers out of which 110 patients were treated with oxum and 108 patients treated with povidone iodine. The mean healing time was lower in the oxum group (45 ± 14) days than Povidone Iodine group (58 ± 20) days. It has also been reported that collagen dressing in the treatment of diabetic foot ulcer was more beneficial and enhanced the healing compared with conventional dressing..

The global efficacy evaluation also confirms the superiority of Super oxidized solution over Povidone iodine as good to excellent. Efficacy response was also relatively more in Oxum treated group patients than Povidone-iodine treated group. Hence in the current study healing rate of ulcers was fast when treated with newer dressing materials (Oxum, opsite , oxoferin, collagen) compared to conventional dressing material (Povidone iodine, H₂O₂, EUSOL, Paraffin)

Conclusion:

As per the study which includes conventional and newer dressing regimes in the treatment of the ulcer shows more favorable results for newer dressing materials when compared to conventional dressing material in healing ulcers which are statistically significant.

Patients treated with newer dressing materials shows that the time required for the removal of slough was almost two days earlier compared to conventional dressing materials and the time required for achieving the absence of purulent discharge from ulcer shows 2 days earlier with the newer dressing materials compared to conventional dressing materials.

The time required for the appearance of granulation tissue by newer dressing materials took 3 days when compared to the conventional dressing materials and finally the time required for the healing ulcer took 4 days early with newer dressing materials compared to conventional dressing materials.

Therefore on the basis of our study I would like to conclude that newer dressing materials are more efficient as compared to conventional dressing materials in all stages of ulcer healing even though there is slight compromise in its availability.

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Table No 1: comparison of various parameters in ulcer dressings in both groups

Parameters	Type of Regime	0-7days	8-14 days	15-21days	22-28days
Appearance of Granulation tissue	A	3	7	10	5
	B	5	9	11	0
Absence of purulent discharge	A	10	5	1	0
	B	13	5	0	0
Removal of slough	A	11	10	0	0
	B	15	7	0	0
Healing stage achieved	A	1	4	7	13
	B	2	7	9	7



FIGURE NO 1: WOUND BEFORE APPLICATION OF CONVENTIONAL DRESSING MATERIALS



FIGURE NO 2: WOUND AFTER APPLICATION OF CONVENTIONAL DRESSING MATERIAL



FIGURE NO 3: WOUND BEFORE APPLICATION OF NEWER DRESSING MATERIAL



FIGURE NO 4: WOUND AFTER APPLICATION OF NEWER DRESSING MATERIAL