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A COMPARATIVE STUDY OF CONVENTIONAL DRESSINGS VERSUS COLLAGEN GRANULE DRESSING IN CHRONIC WOUNDS HEALING

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ABSTRACT

Wounds are basically **injuries that causes break in the skin or any other body tissues**. Chronic Wounds can sometimes cause painful and long hospital stay, it can also need multiple stages of surgeries, which may lead to financial burden. As a result of development in medical field many new dressing materials have developed, like fine mesh gauze, calcium alginate, and hydro- colloid membranes. These materials have some disadvantages also, like they become permeable to bacteria. Collagen dressings on other hand are new type of dressings which create the most physiologically safe interface between environment and the wound surface and is also impermeable to microbes. This collagen granule dressing has advantage over other conventional dressing as it is non-immunogenic, being natural, non-pyrogenic, easy to apply and most important is that it decreased days of healing. In our present work we have compared the rate of healing in about 100 patients, in about half of them conventional dressing was used and rest of them collagen dressings was used. Data was compared and we found out that healing was much faster in the patients with collagen dressings.

KEYWORDS: Collagen dressing, chronic Wounds, Wound Healing, Wound, wound dressing.

INTRODUCTION

Wound healing is very important process which involves several mediators, different cells, and extracellular matrix [1]. Wound may result from precise surgeon's blade, which is also called as incision or from cburns and trauma which damages the tissues. It can also result from laceration, abrasion, contusion and hematoma. It is necessary to maintain continuity, as it plays very important role in homeostasis.[2] An ideal dressings which are used in wound management should be available readily, it should be economical, easy to apply and also should provide good pain relief. It should also be able to protect wound from infections and promote healing, keep moisture. It should be elastic and non antigenic and should adhere very well to the wound and we should wait for spontaneous healing by epithelisation and formation of granulation tissue.[3]

Among new advanced type of wound dressings – Collagen like Biological Dressing creates the most physiological interface in between the wound surface, environment and impermeable to bacteria. Collagen is the most abundant protein present in the body, which plays a critical role in the successful completion ofhealing of wounds. Its deposition on time, its maturation, and subsequently its remodelling is essential for the functional integrity of the wound.[4]

Collagen granule dressing greater advantages when compared to conventional dressing in terms of Collagen formation whic involves greater reduction in inflammatory cells during healing days, thus this results in decreased days of healing, where as conventional dressing has minimal quantity of collagen formation, high grade of inflammation during the healing days which releases maximum exudates. A collagen granule dressing has another advantage over conventional dressing in terms of: - non- pyrogenic, non-immunogenic, being natural, pain free, easy application, and hypo allergic.[5]

AIMS AND OBJECTIVE

To study various effects of collagen dressings on chronic ulcers.
To compare these effects of collagen dressing and conventional dressings.
To compare the advantages of collagen dressings over the conventional one's.
To evaluate the cost effectiveness of the treatment of the ulcers.

MATERIAL AND METHOD

The study was conducted in the Department of General Surgery, Govt. Medical Collagen Kota (Rajasthan). A total of 100 patients suffering from chronic ulcers were taken randomly for study after explaining the procedure and the Aim of the study was informed and consent of patient or attendant was the taken prior to enrolment in the study. Detailed history was taken and clinical examination of ulcers were done.

Material used

1) Conventional dressing as dressing with antiseptic material (povidone iodine)
   The material used for collagen dressings is medifill. Medifill is in the form of particles. It is spherical hydrophilic particle 0. 1 to 0.3 mm in diameter. Each gram of collagen absorbs about 40 to 60 times its weight in fluid absorption causes suction and capillary action in spaces between particles. It is available in 2.5,5, 10 and 15 ml packets
2) Collagen dressings (particles)

Method of application

1) Debride and clean the wound leave the wound moist to facilitate the action of medifill.
2) Apply medifill particle in ¼ inch deep layer over the wound.
3) Change the dressing every 2 to 5 day ‘s on the basis of drainage from wound:

a) Moderate to heavy draining wound 2 to 3 days
b) When drainage become low 3 to 5 days.

4) Remove by washing with normal saline solution when particles becomes saturated,
5) Cover with saline socked gauze piece:

In our study of total 100 patients,80%(80) are male and remaining 20%(20) patient are female. In collagen particle group 90% (40) were male and 10% (10) female. In conventional dressing group 90%(40) were male and 10% (10) female.

There were 28%(28) patient of abdominal wall ulcer, 26%(26) foot ulcers, all other ulcer site includes 46%(46) patients. In our study we included different type of ulcers, out of these:-
Maximum 28%(28) were post operative,
25%(25) were infected,
22%(22) traumatic,
15%(15) arterial including burgers disease and
10%(10) were diabetic

RESULT AND DISCUSSION

Collagen has very good result in our study. Collagen favors speedy wound healing because of increased defence mechanism by stimulation and differentiation of early and late granulocytes, erythroids and megakaryocytic precursor’s cells. Cost of hospitalization can be reduced and we can prevent amputations like in diabetes and peripheral vascular disease .Collagen dressings are very good option for chronic ulcers.
Saraf et al., in their study showed that 92% patient were male, and 18% female, showing higher incidence of chronic ulcer in males, 25% having foot ulcer, and 20% are post operative infected ulcer. Apligraf et al., Diabetic Foot Ulcer study 15% patient having chronic ulcer were diabetic. Wood GC study using collagen solution as dressing material and revel faster healing rate in comparison with conventional dressings.

Winter et al., in their studies they used collagen particles as dressing material and observed faster rate of epithelisation in wounds.

CONCLUSION

With the use of the conventional dressings with collagen granules dressings in comparing the treatment of chronic wounds, following conclusion were derived. Collagen granules showed faster and better healing rates, area reduction was seen which was statistically significant, there was no adverse effects or adverse reactions seen when collagen were applied over the wounds, venous ulcers also healed completely with collagen granules dressings.

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