REPORT OF THE RESULTS OF A STUDY INTO

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SOLICITANTE

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TÍTULO

THE EFFECTIVENESS OF CHITIN BEDDING FOR THE TOPICAL TREATMENT OF SKIN ULCERS IN BED-RIDDEN PATIENTS

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1. - INTRODUCTION

Chitosan fibres, derived from chitin, offer potentially useful characteristics in medicinal applications. The molecular structure is very similar to that of cellulose, which demonstrates the possibilities that this biopolymer offers to the textile industry. Textiles manufactured with this polymer in their composition possess excellent comfort properties as well as skin regeneration, hydration, scar-tissue formation and antimicrobial properties. This study aims to validate these properties in comparison with other treatments currently in use in the field.

Topical treatments identified during the course of the study are typically based on “moist wound environment” and among the products employed are: hydrocolloids, foams, alginates, hydrofibres, hydrogels, enzymatic debridants and finally the bioactive group of resurfacing compounds which favour granulation (5, 13, 14). The traditional woven dressings have practically disappeared from use and therefore the study has focused on comparing the moist wound environment treatments available, mainly foams and alginates.

2. - METHODOLOGY

A longitudinal observational descriptive study was performed, looking at cutaneous ulcers with granulation tissue in bed-ridden patients or in-patients within the state health care system.

Study subjects:

- Patients with ulcers of a vascular origin (venal or arterial), being treated by the Dermatology, Ulcer and Lesion Nursing Unit, CHGUV. Patients displaying signs of infection, those with allergies to one of the components or compounds in chitin dressings and patients who failed to attend their second appointment were excluded from the study group.

- Patients with bed sores or pressure ulcers, being treated by the Dermatology, Ulcer and Lesion Nursing Unit, CHGUV and evaluated with the modified Norton scale (30% clear risk (12-14): 6, 70% high risk (<12): 14) Patients displaying signs of infection, those with allergies to one of the components or compounds in the chitin dressing and patients who failed to attend their second appointment were excluded from the study group.

- In-patients in the internal medicine ward, with complete autonomy and mobility in addition to a normal cognitive state, permitting them to be questioned about the product. It must be noted that 50% of the patients suffered from obesity.

3. - OBJECTIVES

General:

Identify and evaluate the effectiveness of chitin dressings in the treatment of cutaneous ulcers which are in the scar tissue-forming stage on patients being treated by the Dermatology, Ulcer and Lesion Nursing Unit, CHGUV during the period of March, April, May and June 2008.

Population size:

Each population sub-group will comprise 10 patients identified from a consecutive, non-probabilistic sample. The total number of patients in the study will be 40.

4. RESULTS OF THE STUDY

4.1 *CHITIN TEXTILES AS DRESSINGS IN THE TREATMENT OF ULCERS:*

Variables:

Descriptive: age, sex, place of treatment (Dermatology, Ulcer and Lesion Nursing Unit), informed consent form signed by the patient.

Average age: ……. 76.65 years
Women: …….. 75.75 %
Men: ……... 24.25%

To be controlled: type of cutaneous ulcer, immunological condition of the patient, pharmaceuticals (corticoids, cytostatics, antiplatelet drugs), tobacco, alcohol or drug consumption, personal hygiene and nutrition.

PRESSURE ULCERS ……. 29%
VASCULAR ULCERS ……. 71%

Variables in the results: bacterial load, pH of the ulcer fluid, proliferation of the granulation tissue and resurfacing.

pH: ……..5 – 6.3
Bacterial load: ……..……..0%
Granulation tissue: ……..100%
Resurfacing: …….. 70%

Variables to be studied; chitin-based textile dressing:

Adaptability: ……100%
Patient comfort: …… 100%
Pressure marks: ……0%
Absorption: ……100%
Repellency to external liquids: ……100%
Pressure leaks: …… 0%
Itching: …… 0%
Burning: ……0%
Erythema: ……0%
Maceration: ……0%
Flaking: ……-5%
Non-adherence to lesion border: ……96%
Ero/Excoriation/ perilesional ulcers: ……0%

4.2. CHITIN BOTTOM SHEETS

Variables in the results obtained from chitin bottom sheets:

20 study subjects were informed that they would be using a different bottom sheet than that usually employed by the hospital and that the sheet would be changed after 48 hours unless circumstances dictated otherwise, and that they would be required to offer observations with respect to the product. 100% of the subjects answered:

Texture: SOFT
Itching: ABSENT
Allergies: NONE DETECTED
Sensation of heat: NO
Slipping or friction with the head at an angle of >30º: NO
Transpiration and perspiration: EXCELLENT**:**

4.3 OTHER CASES:

The material has also been tested on neonatal patients at 7 days of age, suffering from epidermolysis bullosa.

The adaptability, softness and absorption capacity of the material has led to its being used as a secondary dressing to cover a silicone-coated web and as a sheet to avoid excess friction on exposed skin, taking as a premise the fact that with the slightest friction, patients with this condition will develop lesions beginning as phlyctenas (blisters), which quickly develop into second degree lesions.

5. CONCLUSIONS

During the study carried out on chitin material that has been previously sterilised and then used on cutaneous lesions, it has been observed that:

In exudative perilesional lesions, the material contributed to a re-establishing of cutaneous integrity and that the skin subsequently displayed normal physiological parameters.

That in no type of lesion was a bacterial load detected, leading to the conclusion that the material has bactericidal properties.

In exudative wounds, the limits of the lesion were respected, the exuded fluid did not leach into areas beyond the limits of the injury and that the principals of moist wound environment were satisfied.

No erosion or excoriation lesions were caused by friction or humidity below the dressings and the product is soft and flexible.

As a dressing, it is much more economical than traditional gauze dressings, as these adhere more to tissue, are more traumatic, allow leaching of the exuded fluid into perilesional tissue and are more irritating under the bandage.

With regard to moist wound environment dressings, some of these do allow leaching of the exuded fluid into perilesional tissue.

The product would be a good bedding material for use with bed-ridden patients with a high risk of developing pressure sores as long as the aggressive detergents and softeners that would damage the texture and functionality of the textile are not used during laundering.

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