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MEDICAL TEXTILES COMFORT: APPLICATION TO THE BURNED TREATMENT

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KEYWORDS

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ABSTRACT

The efficiency of a burn patient's recovery, reached in a large skin area, it's directly proportional to the appropriate and intensive application of pressure garments. The use of those fabrics isn't simple and the general comfort of those materials contemplates in the aesthetic and ergonomic results, because the more tolerable is its use, more intensively the patient receives the treatment.

This study aims to present the literature revision on the types of burns, the applied treatments the characteristics of the textile garments used, such as compositions, pressure finishings and the products of joint action, in order to study there comfort properties and detect improvement opportunities in the structural material or finishing of this textile.

INTRODUCTION

A patient suffering a intense burning needs an immediate medical treatment in order to survive, however, the quality of life after the accident, it's related to the maintenance of the health and the mitigation of the side effects of the treatment for the recovery of the skin as, e.g., physical and emotional pains, even problems of social acceptance occur, therefore, the patient could have trauma. This high sensibility requests the all available aid for treatment and the wearing comfort of the pressure garments becomes essential.

The burns are classified in three degrees, whose distinction is associated to the gravity of the lesion in

terms of depth aggression of the skin. The first-degree burn happens when it just commits the epidermis, presenting eritema and pain; the lesion classified as being of second-degree presents a damage of the epidermis and part of the derme with the blistering formation; when all the layers of the skin have been reached, leaving its white or black, little painful and dry, it's the third-degree burn (Ferreira et al. 2003).

The burns of second-degree present variations, linking the inclusion of the reached surface and the depth, being the infections one of the most critical problems in the treatment and demanding the removal of necrotic tissues (debridement), it inhibits the supply of nutrients for harmful bacteria, which consume the little available oxygen for the tissues, hindering the regenerative process of the skin.

The deepest lesions, as it occurs on the third-degree burn, present thrombosis in all reached layers of the skin and the decrease of the oxygenation in the tissues prevents the growth of the capillaries and, consequently, the cicatrization of the wound (Ferreira et al. 2003).

Among the needs presented in the treatment of wounds by burn are the following requirements: the sorption of the exudate (purulent and viscous fluid resulting from inflammation) and the bad odor, bacteriostatic action, oxygenation of the skin, relief of the pain and sensation of freshness and the cicatricial process.

A help of essential importance in the cicatrization of the skin, during the treatment of deep burns, is the pressure garment, whose main functions in the healthy process is: restoration of function, relief of symptoms, prevention of scar recurrence and promotion of optima aesthetic appearance (Edwards 2003). But little studies exist on the comfort of these medical textiles, and their



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action in the cicatrization, essentially, the general comfort evaluated by the patient during the use.

The largest contribution of the use of those pressure garments is when the scar is still immature, and is used on burns within two weeks, should be applied as soon as the wound has healed naturally or has been surgically closed (Munro 1995).

Mechanism of action is not validated, over 24mm Hg is a level that exceeds the inherent capillary pressure and therefore ensures occlusion, that is the momentary approach of the borders of a natural opening. (Rockwell et al. 1988).

The knitted fabrics used in the construction of those pressure garments are elaborated from yarns of continuous filaments of elastane, that can be combined with other yarns as cotton and polyamide.

In certain cases when an effective pressure is impossible to be applied on the located scars as in anatomical depressions, over flexures or during movement, or still the patient cannot tolerate the therapy with pressure, an useful complement to use is the silicon in gel. This can be used prophylactively or as a sole treatment or in conjunction with pressure therapy. The mechanism of action is not really understood, pressure, temperature and oxygen tension have all been investigated, but the most common theory is that the softening and flattening of the scar occurs due to hydration of the scar (Quinn et al. 1985).

APPROACH METHOD

This work intends to evaluate available pressure garments in the area of the comfort, through an approach with objective and subjective evaluations. The specific objective is to evaluate the physical and chemical properties, as well as thermal properties of the materials.

The garments or parts of garments should be made in a way to apply the smallest discomfort, such as thermal, sensorial, ergonomic comfort, also in terms of pain, this requires to do a study of these products at the level of the textile materials, ergonomics, type of seams or joints, as well as the psychological comfort or discomfort in

use of this garments, very much related to the celerity of the patient's recovery.

In the subjective evaluation of the comfort parameters the applied methodology of sensorial analysis is based in subjective tests to patients' groups in recovery and its correspondence with the objective data.

CONCLUSIONS

The pressure garments are very important for a patient to have an appropriate treatment for burns recovery, as well as the whole development in those materials will contribute to the improvement of the process and of the final result of the treatment. The more comfortable, easier use, maintenance, friendlier in aesthetic terms and efficient those products are, the larger the patients' interest in using them and consequently better will be their quality of life.

For that work, it was made a review of treatments and materials used for burned patients, being focused on the recovery of the skin through the pressure garments. The next stages aims the definition of a group of patients and the elaboration of an inquiry for trial evaluation of comfort with descriptors definition and the identification of the improvement opportunities in those garments.

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