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Role of Autologous Lipoaspirate Therapy in Preventing Abnormal Scarring in Scald Burns

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Abstract

Aim of this case report is to assess role of autologous lipoaspirate therapy in preventing abnormal scarring in scald burns. Clinical examination of the extent of the burn was done. Standard management (antibiotics, Intravenous Fluids, analgesics. Dressings, regenerative therapies, scar management) of the burns was done along with that autologous lipoaspirate therapy. Autologous lipoaspirate therapy is effective in preventing abnormal scarring. Autologous lipoaspirate therapy may be used preventing abnormal scarring.

Keywords: Autologous Lipoaspirate Therapy; Abnormal Scar; Prevention; Regenerative Therapy; Burns.

INTRODUCTION

Optimum healing of a cutaneous wound requires a well orchestrated integration or the complex biological and molecular events of cell migration and extracellular matrix (ECM) deposition, angiogenesis, and remodeling.[1] Normal wound healing is a dynamic and complex process involving coordinated interactions between diverse immunological and biological systems. It involves a cascade of carefully and precisely regulated steps and events that correlate with the appearance of various cell types in the wound bed through out the distinct phases of the healing process. Burn wound heals leaving scars with varying degrees of functional and aesthetic components. But it is minimised with standards of initial treatment.

MATERIALS AND METHODS

The study is done in a tertiary care hospital in South India. The subject is a 1.5 year-old female child, with no comorbidities came with alleged history of accidental spill of hot milk over the right arm, axilla, right side of the chest. and sustained second degree burns involving head and neck. (Fig. 1) Patient was admitted in Burns ward, managed according to standard WHO protocol with antibiotics, Intravenous Fluids, analgesics and regenerative the rapies. We used regenerative

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therapies like autologous lipoaspirate therapy over the burn injury for prevention of development of abnormal scar. Autologous lipoaspirate therapy was done from the lower abdomen (Fig. 2). The aspirated fat was centrifuged for 3000 RPM for 3 minutes. Middle layer was used for infiltration. VSS score at the time of discharge was 4/13.

Fig. 1: At the time of admission

Fig. 2: Autologous lipoaspirate aspiration

RESULTS

Autologous lipoaspirate therapy in helpful in wound healing and prevention of abnormal scarring in burns. No complications noted with this procedure. Patient discharged successfully after 40 days of burn injury. (Fig. 3).

DISCUSSION

The normal pace of wound healing and epithelialization is at the rate of 1 mm/day.

Autologous lipoaspirate aspiration

Fig. 3: Healed burn wounds

Optimum

Recovery requires the wound bed and the patient to be fit. The advanced wound healing therapies aim to hasten the process of wound healing by expediting the advancement of epithelial edge of the wound. Many growth factors have been used to advance the epithelialisation but the paradigm

of wound healing is changing from repair of the tissue towards the regeneration of the tissue. The pre requisite for regeneration of tissue is the presence of stem cells in the wound environment. Stem cell therapy is clinically applied as a safe and effective method for repair of several types of tissue damage.[2,3] Adipose tissue stem cells and their secretory factors have been investigated as a substitute for bone marrow stem cells which offer a potential solution to skin repair and regeneration.[4,5] In our study we used lipoaspirate, harvested as per the technique described by Rigotti et al. Inpatients who are not fit for surgery/unwilling for surgery, we used ALA therapy as an adjunct to regular management of the wound. In this group of patients, ALA therapy accelerated wound healing and wound bed preparation for cover by SSG/flap. Due to small sample size statistical analysis could not be done. A randomised control study with adequate sample size with wounds of different etiologyis desirable to substantiate the results. The most abundant and accessible source of adult stem cells is adipose tissue and MSCs have been obtained by lipo-suction of human adipose tissue. The yield of MSCs from adipose tissue is approximately 40 fold greater than that from bone marrow.[6]

CONCLUSION

Autologous lipoaspirate therapy is useful in preventing abnormal scar in burns.

REFERENCES

1. FalangaV. Wound healing and its impairmen in the *diabetic foot Lancet* 2005; 366:1736-1743.
2. Park BS, Jang KA, Sung. IH et al. Adipose-derived stem cells and their secretory factors as a promising therapy for skin aging. *Dermatol Surg* 2008; 34 (10): 1323-6.
3. Schachinger V, Erbs S, ElsässerA et al Intracoronary bone marrow-derived progenitor cells in acute myocardial infarction. *N Engl |Med* 2006;355(12):1210-21.
4. Rigotti G, Marchi A, Galie M et al. Clinical treatment of radiotherapy tissue damage by lipoaspirate transplant: a healing process mediated by adipose-derived adult stem cells. *Plast Reconstr Surg* 2007 Apr 15;119(5):1409-22.
5. Schult G, Sibbald G, Falanga V et al. Wound bed preparation: a systematic approach to wound management. *Wound Repair Regen* 2003;11; 1-28.
6. Kern S, Eichler H, Stove Jet al. Comparative analysis of mesenchymal stem cells from bone marrow, umbilical cord blood, or adipose tissue. *Stem Cells* 2006; 24(5):1294-301.