THE DIFFERENT APPROACHES IN THE TREATMENT OF HYPERTROPHIC SCARS AND KELOIDS

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ABSTRACT

The treatment of keloids and hypertrophic scars represents an ongoing challenge in dermatology and plastic surgery. This article reviews current therapeutic approaches and recent innovations in the treatment of these conditions. The efficacy of combination therapy, the use of botulinum toxin and other therapeutic advances are discussed. The information is based on a comprehensive analysis of recent studies and articles, focusing on pathophysiology, risk factors, and management strategies.

Method:To achieve the objective of this study, which is a literature review, the PubMed and MedLine databases were used, using the following descriptors: "Hypertrophic Scars" AND "Keloids" AND "Keloid Treatment".

Keywords: Keloids. Hypertrophic scars. Combined therapy. Scar management.

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INTRODUCTION

The healing process involves a sequence of events that depend on exogenous and endogenous factors, such as ethnicity, age, and gender. Which when they occur in a normal way generate a final scar with a good aesthetic and functional appearance. However, there may be a loss of control of the mechanism of regulation of tissue regeneration and repair, causing a hyperproliferation of fibroblasts, leading to an accumulation of extracellular matrix, thus forming keloids and hypertrophic scars

Keloids and hypertrophic scars are raised scars that result from an abnormal response to skin injury, leading to the formation of excessive scar tissue. These conditions can cause aesthetic and functional discomfort and are difficult to treat. Therefore, it is essential to explore and understand the therapeutic options available.

PATHOPHYSIOLOGY AND RISK FACTORS

Hypertrophic scars are raised, tense scars that respect the margins of the original wound, in addition, they tend to regress a few months after the initial trauma. Keloid, on the other hand, consists of a raised, shiny, and itchy or painful lesion. In addition, keloids have the characteristic of exceeding the limits of the original lesion, invading the adjacent normal skin, and, unlike the hypertrophic scar, do not regress spontaneously.

The pathophysiology of keloids involves the production of extracellular matrix, glycoproteins and water, the two forms both hypertrophic scars and keloids involve the unregulated production of type I and III collagen, leading to the formation of elevated and fibrous scar tissue. Genetic factors, ethnicities, especially blacks, hippanics and Chinese, in addition to individual predisposition are fundamental in the development of these scars (Wolfram et al., 2009; Ferreira & D'Assumpção, 2006) (Erick A. Mafong et al., 2000).

THERAPEUTIC APPROACHES

Although they have been mentioned for more than 1000 years BC, and have a well-understood pathogenesis, there are still many advances in relation to the treatment of these scars, and it is important to value the reduction in the scar, with the use of appropriate surgical techniques. Among the treatments, we have surgical interventions performed through partial displacement and advancement of flaps, which have high recurrence rates, in addition to only being indicated after the maturation period, which ranges from 6 to 12 months.

Non-surgical therapies are the most accepted and used, in addition to presenting better results, such as the use of laser, botulinum toxin type A, pressure devices,

radiotherapy, cryotherapy and hypoallergenic microporous adhesive tape. The first line of treatment is steroid injections. In people with poor resistance to pain, silicone gel-based products are used. Which will be better elucidated in the course of the work.

COMBINATION THERAPY

Combination therapy is an effective approach in the treatment of keloids. Studies such as that by Mascarinhas et al. (2015) show that combining corticosteroids with other modalities, such as laser treatment, can result in better outcomes than single therapy. This approach takes advantage of synergistic effects to reduce keloid formation and growth.

USE OF BOTULINUM TOXIN

Kasyanju Carrero et al. (2019) highlight the potential of botulinum toxin type A in the treatment and prevention of hypertrophic scars and keloids. Botulinum toxin has shown efficacy in reducing collagen production and modulating the local inflammatory response, presenting a promising therapeutic option.

RECENT ADVANCES

Del Toro et al. (2016) identify significant advances in scar management, including new therapies based on low-energy techniques and anti-inflammatory drugs. Recent research also points to the importance of personalized and blended approaches in treating scars.

EMERGING THERAPIES

Recent studies have explored new emerging therapies for the treatment of keloids and hypertrophic scars. A 2024 paper published in the Journal of Dermatological Science presents new methods based on nanotechnology and gene therapies, which are showing promising results in clinical trials (ScienceDirect, 2024).

CONSIDERATIONS ABOUT PLASTIC SURGERY

Surgical management may be necessary when conservative approaches are not effective. Marcos et al. (2011) provide a detailed overview of the principles of plastic surgery, including techniques to minimize the formation of new scars and improve the treatment of existing ones.

Therefore, it is important to use a good surgical technique, relying on suture by planes and avoiding excessive manipulation of tissues.

CONCLUSION

Keloids are a great reason for seeking in offices and are extremely complex from a therapeutic point of view. However, it is known that the main objective is to prevent them, with the use of appropriate surgical techniques

Therefore, the integration of combination therapies, the use of botulinum toxin, and the exploration of new technologies offer new hope for improving the management of these complex conditions. Future studies should continue to validate these approaches and explore new therapeutic options.

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