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Matriderm Has Been Presented As Providing A Better Graft Quality For The Same Depth Donor Site Even In The Acute Situation. What Would Limit The Use Of Matriderm For Every Skin Graft Procedure?

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Abstract: *It has been proven that Matriderm is useful for every skin graft procedure with the combination of different substitutes such as Matriderm and skin autologous graft as compare to all other available substitutes in practice but Metriderm can`t be used on it`s own for any skin graft because it is applicable only for superficial burns. It has been used as a single layer, left on wounds for seven to ten days, indicated only for superficial burns. This literature would highlight limitations for the use of Matriderm for every skin graft procedure.*

Method

MEDLINE/ PubMed Data

Literature Review

Matriderm is a single layer of collagen and elastin skin substitute that acts as a dermal regeneration prototype and can be stored at room temperature (Kolokythas et al. 2008). Matriderm is suitable for one step repair of full thickness burns (Wetzig et al. 2009). It is a class III product which works as an implant. Intrinsically, it acts as scaffold for tissue reconstruction and is absorbed in 6 weeks by replacement of autologous cells and tissue (Cervelli et al, 2010).

Cervelli et al. conducted a study on diverse groups with various combinations of substitutes including with the use of Matriderm for every skin graft and identified significance between the groups. They also emphasized that Matriderm can be used on tendons and bone.

Although Matriderm and other dermal substitutes improve overall wound healing by increasing the elasticity and pliability of the reconstructed skin there are a number of factors that may limit the use of Matriderm. A major contraindication to the use of Matriderm which is derived from porcine material, is allergy to porcine material (Rehim et al. 2014).

Use of Matriderm, or any dermal subsititute would not be appropriate in wounds in which there is very limited or almost no vasculaised tissue. The amount of vascularized tissue required for successful use of Matriderm is not well defined in the literature however, and therefore would be a clinical judgement based on the Surgeon's experience (Iorio et al. 2012). Another factor limiting use of MAtriderm is wounds that have been irradiated or that have extensive devalitalised tissue (Rehim et al 2014).

A factor of great significance is the presence or absence of infection. Studies report that in the presence of infection, there is 26% less successful take of dermal matrices (Heimbach et al 1988). Another more recent study reported a case of fatal shock syndrome secondary to colonization of the dermal substitute grafted site by MRSA (Shirley et al. 2010). Therefore, it is imperative to rule out infection by microbiology cultures prior to application of dermal substitutes (Rehim et al. 2014).

Finally, another area to be considered and may be a reason not to use Matriderm is cost and availability, particularly in developing countries. Currently, data on cost-effective analysis on Matriderm is limited. On study reported that dermal substitute treatment costs totaled 2218 Euros per patient, where as skin graft only treatment cost 1703 Euros. However, they also reported that indirect health related costs such as cost of staying in hospital and labour were considered more important factors when deciding on treatment option (Hop et al 2013).

Summary

Therefore, in summary there are a number of factors that have to be taken into account and may lead to the use of alternative treatment options, however the decision to use Matriderm, or any dermal substitute is therefore often a clinical one.

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