

Use of Topical Nitroglycerin in aiding Full Thickness Skin Graft take

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Abstract

Skin grafting is a technique that has been used to cover wounds since time immemorial. Various factors affect the take of the graft. If graft take is inadequate, it adds to the morbidity of the patient in terms of additional hospital stay, repeat surgery, and chances of loss of the second graft as well. Various methods have been described in aiding the take of the graft. In this article we would like to highlight the use of topical nitroglycerin in improving the take of Full thickness skin graft.

Keywords: Full thickness skin graft; Nitroglycerin; Graft take.

INTRODUCTION

Skin grafting is an age old procedure which has been used for wound coverage. But the healing process is longer and may be difficult, depending on the wound site, skin defect size, and patient comorbidities. Skin grafting take is by three stages. Stage of Imbibition, Stage of Inosculation, Stage of revascularisation. All the above mentioned stages are

equally important, but in a full thickness skin graft it is the stage of revascularisation that helps in anchoring the graft to the wound bed, through neo angiogenesis from the periphery. Nitroglycerin as oral tablets has been popularly used in treating cardiac ischemia, by its vasodilation and its antithrombotic action.¹ In this article we would like to extrapolate the use of nitroglycerin to improve the take of full thickness skin graft.

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MATERIALS AND METHODS

The study was conducted in the Department of Plastic surgery, in a tertiary care centre during the month of November 2020. The patient was a 20-year-old male who had history of RTA 15 years ago following which he had developed left upper eyelid ectropion and was suffering from the same for 15 years.



Fig. 1: Fixed FTSG at the raw area in upper eyelid with topical nitroglycerin applied at the edges



Fig. 2: Full thickness skin graft on POD 7, post nitroglycerin application with limited loss



Fig. 3: FTSG on POD 10.

Incision and release of the ectropion was done following which the raw area created was covered with a full thickness skin graft taken from left thigh. As the area had relatively less vascularity, the decision of using topical nitroglycerin was made immediately post grafting on the graft edges.

On POD 05, graft dressing was done, which showed minimal epidermal loss. Repeated topical nitroglycerin, every 6 hourly was applied. This aided in better graft uptake.

DISCUSSION

Graft necrosis is an adverse outcome which can add to the morbidity of the patient in terms of negative cosmesis, infection and resurgery. Skin graft failure has been attributed to various factors, the vascular factors being decreased arterial flow and venous sludging.² Topical nitroglycerin is a potent vasodilator which acts by increasing the blood flow in the artery and veins without

increasing pre and post dilatation resistance.³ Hence it has been presumed that by increasing local blood flow, topical nitroglycerin will improve the survival of skin flaps and grafts.

Various studies have been done to prove the efficacy of topical nitroglycerin with mixed results. Rohrich et al., in animal models has stated that nitroglycerin applied topically prevents skin flap necrosis. Lehman et al found similar results in children who had underwent neurosurgical procedures.⁴

Dunn et al, did a study which analysed single postoperative use of topical nitroglycerin in improving the survival of skin flaps and grafts and found out that there was no significant improvement.⁵

In our study, serial application of topical nitroglycerin aided in preventing a full thickness graft. The disadvantage of this is that it is a single center case study, and it requires a multicenter, randomized controlled trial study to validate the effect of topical nitroglycerin in improving full thickness graft uptake.

CONCLUSION

Topical NTG has been proven effective in preventing flap necrosis, but not much literature is available in assessing its efficacy in graft uptake, hence a multicenter randomized controlled trial is essential to prove the same.

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