

Topical Insulin and Normal Saline in Chronic Diabetic Foot Ulcers- A Prospective Analytical Study.

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- **Abstract:** Introduction: Diabetic foot ulcers are important diabetesrelated microvascular complications aggravated due to multiple pre-existing factors such as peripheral arterial disease, immune system factors, bone abnormalities, diabetic neuropathy, infections and repetitive external or minor trauma. Diabetic foot ulcers could lead to lower limb amputation if not managed appropriately. Aim: To evaluate the use of topical insulin in chronic diabetic foot ulcers at a tertiary care centre. Materials and Methods: This prospective analytical study of 12 months duration was conducted in Department of Surgery, in diabetic patients between the age group of 25 to 70 years, presenting for the first time with diabetic foot ulcer. A total of 60 patients were divided into two groups alternately as group A patients underwent dressing with topical insulin and group B patients underwent dressing with regular normal saline. Sterile transparent gauze was placed on the wound to mark the wound borders and the wound area measured. With the help of ruler the two largest perpendicular diameters were measured and these were multiplied to obtain the wound area in cm². Ulcers were cleaned with normal saline and a sterile gauze soaked with Human mixtard insulin and normal saline. Four units of 0.1 mL Human mixtard insulin with 1 mL normal saline used for each 10 cm² of wound in group A. Data was analysed by using SPSS software. Chi-square test was used and p-value of <0.05 was considered as significant. Results: Mean age distribution was 51.2 ± 9.6 years and 50.6 ± 10.9 years in group A and B, respectively. Mean HbA_{1c} at admission was 6.3 ± 0.9 and 6.1 ± 0.8 in group A and B, respectively. On day 0, 7, 15 wound measurements were done. A statistically significant difference was noted in reduction of average surface area of wound at day 7, 15 between group A and B. Insulin dressing group showed better changes than saline dressing group. Percentage reduction of surface area of wound at day 15 was 67.8 ± 11.45 in insulin dressing group and 49.51 ± 18.21 in saline dressing group, statistically significant difference was noted. Average time required for granulation tissue to appear was 6.08 ± 2.15 days and 9.48 ± 4.21 days in group A and B, respectively, statistically significant difference was noted ($p < 0.001$). Conclusion: The application of topical insulin is secure and successful in patients with diabetic foot ulcers. Topically applied insulin can increase speed of wound healing and there are no chances of systemic side effects.
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