COMPARISON OF LOW VERSUS HIGH PRESSURE NEGATIVE PRESSURE WOUND THERAPY (NPWT) IN DIABETIC FOOT WOUND ON WOUND SIZE REDUCTION AND WOUND BED PREPARATION: A RANDOMIZED SINGLE BLINDED STUDY

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Introduction: The use of negative pressure wound therapy (NPWT) to facilitate the healing of diabetic foot ulcer (DFU) had been studied by many people. To date, the optimal pressure for NPWT was -125mmHg. The aim of this study is to compare the effectiveness of low pressure (-50 mmHg) and high pressure (-100 mmHg) NPWT in term of wound size reduction and optimal wound bed preparation for secondary procedure.

Methodology: This was a randomised prospective interventional study done on patients with DFU admitted to orthopaedic ward, Hospital Universiti Sains Malaysia. A total of 58 patients which were randomly assigned into 2 groups either low pressure (-50 mmHg) or high pressure (-100 mmHg) NPWT and the outcome measured were wound size reduction and wound bed score at baseline, day 5 and day 10. Patients demographic data were collected and statistical analysis was done using repeated measure analysis of variance (ANOVA) to determine the relationship between the treatment and outcomes measured.

Results: Pairwise mean comparison of both treatment group showed no significant difference in between wound size measurement at baseline and day 5 ($p=0.180$). However there was significant difference in between wound size measurement at baseline ($p< 0.001$) and on day 5 with measurement at day 10 ($p< 0.001$). There was significant difference in between evaluation of wound bed score at baseline and day 5 and day 10 ($p< 0.001$). Repeated measure ANOVA showed wound size and wound bed score changes were significant over time ($p<0.001$) however there were no significant difference between wound size reduction ($p= 0.151$) and wound bed score ($p=0.191$) with different level of negative pressure.

Conclusion: NPWT at low pressure showed efficacy to facilitate the healing of DFU by reducing the wound size and expedite wound bed preparation for secondary procedure. The level of negative pressure used should be tailored to individual patient.