

HEMOGLOBIN A1C AS AN INDEPENDENT PREDICTOR OF WOUND HEALING: A PRELIMINARY REPORT

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Aim: The purpose of this study is to determine if hemoglobin A1c can be used as an accurate predictor of wound healing.

Methods: A retrospective analysis of data gathered from multi-center, controlled, prospective, randomized FDA approved clinical trials is being conducted. Analyzed variables include age, gender, race/ethnicity, body mass index, duration of diabetes, initial wound size, and the method utilized to off-weight foot ulcers. Multilevel linear regression was utilized to examine the effect of hemoglobin A1C on the percentage of wound healing achieved at 12 weeks using SAS statistical software (version 9; SAS Institute, Cary, NC). The initial sample size was 458 subjects. To account for possible collinear variables, the models were adjusted based on significance ($P < 0.05$). Variables that were significantly associated with the percentage of wound healing achieved at 12 weeks remained in the final model.

Results: The final linear regression model ($P < 0.0001$) found that higher hemoglobin A1C levels were associated with lower percentages of wound healing ($P = 0.05$), after adjusting for gender, body mass index, initial wound size, and method used to off-weight foot ulcers. This inverse relationship results in a reduction of 3% area of healing for every 1% increase in hemoglobin A1c.

Conclusion: The results of this preliminary analysis provide evidence that blood sugar control as measured by hemoglobin A1c has a direct effect in the process of wound healing. Maintaining controlled levels of hemoglobin A1c is an important underlying factor in the comprehensive approach to healing wounds.