

## **Glycated albumin is a more effective glycemic marker than glycated hemoglobin (HbA1c) for predicting adverse outcomes after amputation in diabetic foot patients**

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**INTRODUCTION:** The optimal marker for evaluating glycemic control before diabetic foot surgery is still unclear. This study aimed to evaluate the effectiveness of glycated albumin versus glycated hemoglobin (HbA1c) in predicting early complications after amputation and to identify the threshold level at which the risk of complications significantly increases.

**METHODS:** This prospective single-center study evaluated primary diabetic foot patients from an academic institution. Patients were assessed for glycated albumin and HbA1c levels within 30 days before surgery. Complications, including uncontrolled infection, wound issues, re-amputation and re-operation were monitored for 4 weeks post-surgery. The ROC curve was employed to establish the cut-off values for glycated albumin and HbA1c linked to complications. Additionally, two HbA1c thresholds, 6.5% and 7.5%, were compared with glycated albumin to evaluate their effectiveness in predicting complications.

### **RESULTS:**

In total, 79 patients (63 men, 16 women) participated in the study. A glycated albumin level of 22.8% was identified as the optimal cut-off for predicting complications. Patients with glycated albumin levels above 22.8% were 2.86 times more likely to develop uncontrolled infections compared to those with lower levels ( $p = 0.001$ ). The rates of re-amputation and re-operation were 2.4 and 3.6 times higher, respectively, in patients with glycated albumin above the threshold ( $p = 0.006$  and  $p = 0.037$ ). These associations remained statistically significant in multiple regression analysis. In contrast, an HbA1c level above 7.5% was significant correlation with complications.

### **DISCUSSION AND CONCLUSION:**

Glycated albumin is a reliable and highly effective predictor of complications following amputation in diabetic foot patients. It more accurately reflects glycemic control, has superior predictive power for adverse events, and responds more rapidly to treatment compared to HbA1c. These findings advocate for screening all patients undergoing amputation with glycated albumin, and for those with levels above 22.8%, strict glycemic control before surgery is crucial.