Hidden Glycemic Risk Drives Postoperative Morbidity In Plastic Surgery: Insights From 14,629 Patients

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BACKGROUND

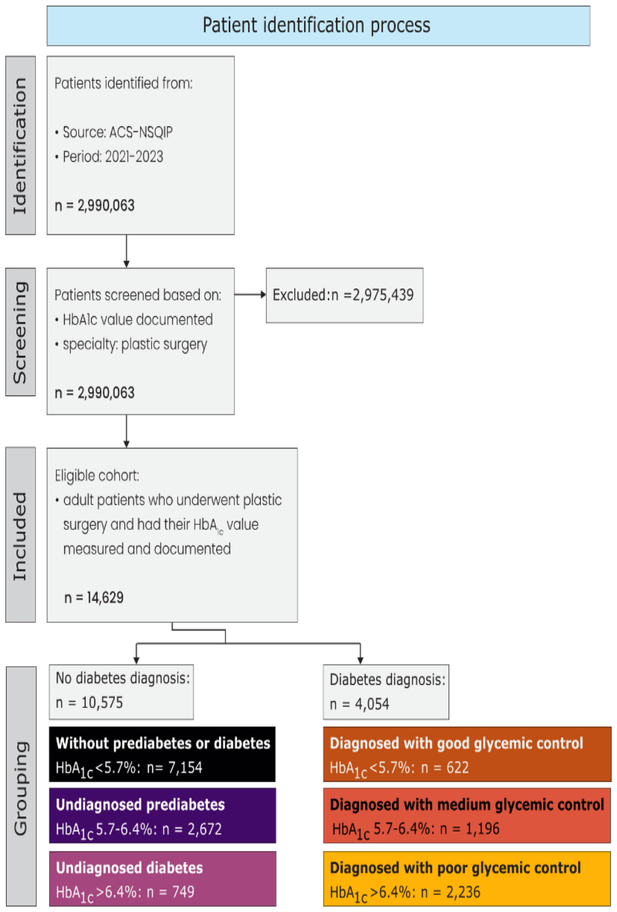
- Glycemic dysregulation is a known surgical risk factor—but **understudied in plastic surgery**
- Plastic surgery outcomes depend heavily on:
  - Wound healing
  - Microvascular perfusion
- HbA1c screening is **inconsistently used**

STUDY OBJECTIVE

To evaluate:

- Prevalence of dysglycemia
- Association with postoperative complications
- Procedure-specific risk patterns

METHODS



RESULTS

Figure 1. Distribution of Glycemic Status and Diabetes Diagnosis. Stacked bar chart demonstrating the prevalence of glycemic categories among patients with and without a documented diabetes diagnosis. Notably, 7.1% of patients without a prior diagnosis met laboratory criteria for diabetes (HbA1c >6.4%), highlighting a substantial burden of undiagnosed dysglycemia in the surgical population.

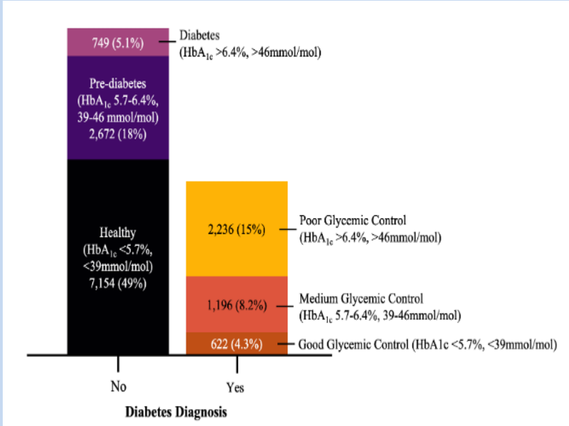


Figure 2. Adverse Event Rates by Glycemic Status Stacked bar chart depicting the proportion of postoperative adverse events across glycemic strata. Rates of overall, surgical, and medical complications increased progressively with worsening glycemic control, with the highest burden observed in patients with diagnosed diabetes and poor glycemic control.

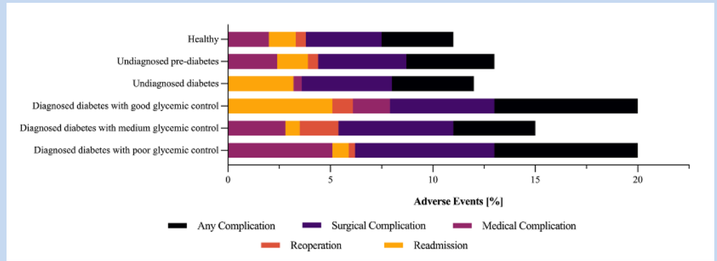


Figure 3. Multivariable Analysis of Glycemic Status and Postoperative Outcomes Forest plot displaying adjusted odds ratios (ORs) and 95% confidence intervals for postoperative outcomes across glycemic groups compared to healthy controls. Diagnosed diabetes was independently associated with increased odds of complications, even in patients with normoglycemic HbA1c levels, whereas undiagnosed dysglycemia was not significantly associated with increased risk after adjustment.

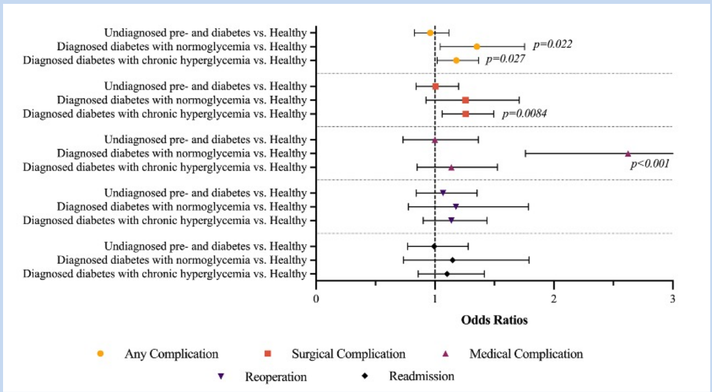
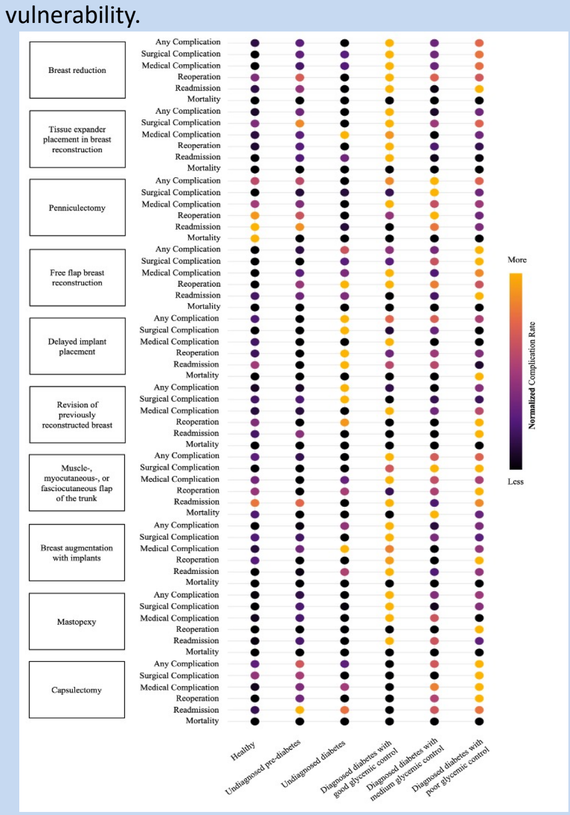


Figure 4. Procedure-Specific Impact of Glycemic Status on Complications Heatmap illustrating normalized complication rates across the ten most common plastic surgery procedures stratified by glycemic status. Procedures with high microvascular demand, such as free flap breast reconstruction and mastopexy, demonstrated the strongest association between worsening glycemic control and adverse outcomes, underscoring procedure-specific vulnerability.



CONCLUSIONS

- Dysglycemia is **common** (~7% undiagnosed diabetes).
- **Diabetes diagnosis increases complications**, even with normal HbA1c.
- **HbA1c alone underestimates risk**.
- Risk is **procedure-specific**, highest in microvascular cases.

LIMITATIONS

- Retrospective design
- Limited HbA1c availability (selection bias)
- No data on diabetes duration, treatment, or perioperative glucose control
- 30-day outcomes only

IMPLICATIONS

- Risk stratification should include **diabetes diagnosis + HbA1c**
- "Controlled" diabetics are **not low risk**
- High-risk procedures require **greater metabolic optimization**

ACKNOWLEDGEMENTS

- None