

## Anemia After Bariatric Surgery: Can We Predict It Before and Early After Surgery?

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**Background:** Identifying prognostic factors for anemia after metabolic bariatric surgery (MBS) is essential to recognize high-risk patients and implement targeted nutritional interventions.

**Methods:** This study is a retrospective analysis of a MBS database. A total of 630 patients undergoing different MBS procedures with available perioperative and follow-up laboratory data were included. Anemia was defined as hemoglobin <13 g/dL in men and <12 g/dL in women. Receiver operating characteristic (ROC) curve was performed for analysis. Longitudinal trends in hematologic parameters were assessed over a follow-up period of up to 60 months.

**Results:** Hemoglobin and hematocrit demonstrated a modest overall decline. Among preoperative variables, age showed the strongest predictive performance for anemia (AUC = 0.789,  $p < 0.001$ ), with a cut-off of 39 years yielding 82.6% sensitivity and 76.5% specificity. Preoperative fasting blood sugar (0.671,  $p = 0.007$ ) and triglyceride levels (0.683,  $p = 0.010$ ) were also significant predictors, with triglycerides demonstrating high specificity (88.2%) at a cut-off of 103 mg/dL. Early postoperative weight loss parameters at 12 months, but not at 6 months, were associated with anemia risk. Both total weight loss and excess weight loss at 12 months predicted long-term anemia (0.663,  $p = 0.0195$  and 0.677,  $p = 0.013$ , respectively), with an excess weight loss threshold of 67.8% providing balanced sensitivity (60.9%) and specificity (78.4%).

**Conclusion:** Long-term anemia following MBS is multifactorial and can be predicted using readily available preoperative and early postoperative variables, supporting risk-stratified surveillance and targeted nutritional strategies to reduce hematologic complications.

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