Increased Blood Glucose Range is Associated with Postoperative Complications.

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INTRODUCTION:
Hyperglycemia in non-diabetic patients has been described to increase the risk of acute postoperative complications. A paucity of literature exists in evaluating the impact of increased blood glucose ranges (BGR) on outcome measures. Therefore, we aimed to evaluate the association between inpatient BGR and outcomes after hip surgery in non-diabetic patients.
METHODS:
In this retrospective analysis, orthopaedic trauma patients admitted to an urban, level 1 trauma center for surgical treatment of femoral neck fractures were enrolled between 1/2016-12/2019. Adult non-diabetic patients with acute fractures requiring a single procedure were included. Chart review was performed to collect demographics and BGR during inpatient stay. The primary outcome measures were inpatient postoperative complications such as infection, stroke, cardiac arrest, and sepsis. BGR was categorized as low (0-120mg/dL) or high (>120mg/dL). Chi-squared and logistic regression analyses were performed to evaluate the association between postoperative complications and BGR. Odds ratios (OR) were reported with 95% confidence intervals (CIs).
RESULTS:
Of 516 patients (age:58.42±1.02, 40.5% female) with surgical fixation of femoral neck fractures, 83 (16.09%) developed one or more postoperative complications. High BGR was measured in 59 (11.43%) patients. A high BGR was significantly associated with length of hospital stay (LOS) (r=0.29, $p<0.001$). When controlled for LOS, patients with a high BGR had 3 times higher odds of developing one or more postoperative complications (OR:3.08, CI:1.6-5.69). Age, gender and injury severity were not significantly associated with postoperative complications ($p>0.05$).
DISCUSSION AND CONCLUSION:
Increased BGR is associated with both negative postoperative outcomes and increased hospital utilization in non-diabetic orthopaedic trauma patients. While other literature describes dysregulated BGRs and negative postoperative outcomes in non-orthopaedic patients, its importance has not yet been highlighted in the orthopaedic trauma environment. Further prospective studies on managing BGRs in orthopaedic trauma patients could substantiate this association and help mitigate this common risk factor.