

# **Nutritional Intervention Integrated into Perioperative Care for Patients with Uncontrolled Diabetes, Renal Insufficiency, or Low Albumin Provides Opportunity to Reduce Complication Risk and Improve Outcomes after Elective Arthroplasty**

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## **INTRODUCTION:**

Uncontrolled diabetes, renal insufficiency, and hypoalbuminemia are three preoperative markers associated with increased risk for postoperative complications and higher healthcare expenditures after elective joint arthroplasty. Preoperative patient education and postoperative nutrition consultation were integrated into the perioperative joint replacement care pathway for patients considered at-risk for complications during their recovery. The purpose of this poster is to describe targeted nutritional interventions that decreased wound complications and decreased readmissions while minimizing surgical postponements and cancellations.

## **METHODS:**

A nurse practitioner screens all patients in a high-volume joint replacement institution before elective and revision joint replacement surgery. From January 1 – December 31, 2022, 1,825 patients were screened for elective arthroplasty (1,698) or revision arthroplasty including polyethylene exchange (127). Preoperative modifiable risk factors considered include anemia (Hgb<10 mg/dL), hypoalbuminemia (serum albumin<3.5 g/L), uncontrolled diabetes (HbA1C >8%), BMI (>50), tobacco use, chronic opioid use, renal insufficiency (GFR<50), staphylococcus colonization status, and venous thromboembolism risk. The nurse practitioner gives all patients a nutritional handout with instructions for an anti-inflammatory (Mediterranean) diet beginning 4 weeks prior to surgery and continuing for 4 weeks after surgery. For patients with low albumin, protein supplementation is encouraged. For patients with renal insufficiency, an anti-inflammatory diet with a limited amount of daily protein (0.8g protein/kg bodyweight/day) is prescribed. Patients with uncontrolled diabetes are counseled to monitor blood sugar throughout the day with goal to maintain levels between 90 and 130 throughout the 4 weeks preceding and following surgery. Postoperatively, patients identified as at-risk preoperatively receive a clinical nutrition consult during their hospital stay to quantify dietary habits, reinforce education on anti-inflammatory diet with increased protein intake, and order nutritional supplementation when necessary.

## **RESULTS:**

A total of 176 (9.6%) of 1,825 patients were identified to be at nutrition risk, received nutrition education before surgery, and had a nutrition consultation placed after surgery: 19 (11%) patients had hypoalbuminemia (<3.5m/dL), 135 (77%) had renal insufficiency (GFR <50), 21 (12%) had uncontrolled diabetes (A1C>8%). In total, 393 (22%) of 1,825 patients had diabetes and were ordered a consistent carbohydrate diet while admitted to the hospital. Poor alimentation was noted among 49 (28%) of the 176 consult patients due to hypoalbuminemia or perioperative anorexia. Each patient received a protein supplement shake (10-20g protein content) until appetite improved.

**DISCUSSION AND CONCLUSION:** Nutritional status is a modifiable risk factor affected by socioeconomic, educational, and health status. Targeted nutritional interventions with patient education, dietary supplementation, and an anti-inflammatory diet can reduce perioperative complications and improve overall health without interfering with scheduled surgery. Ultimately, this leads to improved quality of life and reduced healthcare costs.