Quality Improvement Measure to Improve Hemoglobin A1c Prior to Penile Prosthesis Surgery Results in Sustained Glycemic Control in Diabetic Men

Abstract

Introduction: Diabetes mellitus (DM) has been associated with device infection risk following penile prosthesis (PP) surgery. We hypothesize diabetics who undergo PP implant after a delay to improve HbA1c values are able to sustain glycemic control post-operatively.

Methods: Per institutional protocol, an A1c <9% must be documented prior to undergoing PP placement. A single surgeon PP database was queried and univariate and multivariate statistical analysis were performed to assess associations with sustained HbA1c control (<9%), weight loss, or weight gain.

Results: 447 PP were placed with 131 diabetics identified. Fourteen men (15.9%) were delayed a median of 5 months (range 2-17) due to elevated HbA1c values (median 10.2, range 9.1-12). Age, preoperative body mass index (BMI), and smoking status did not differ significantly (p>0.05). Among delayed recipients, insulin dose was increased in 3 (21%) or newly initiated in 4 (29%), while 7 men improved HbA1c without medication changes.

Conclusions: PP placement is safe in diabetic men with preoperative HbA1c values <9% and policies mandating this cutoff may result in improved long-term DM control.

Introduction

• DM is consistently identified as an independent risk factor for PP infection. A1c cutoffs vary among providers across the country, typically ranging 7-9%, with the subsequent challenge of optimizing patients' DM management.

• Beyond prevention of surgical morbidity, improved glycemic control reduces long term complications.

• 12.9% of diabetic adults exhibit poor control with A1c values >9%.

Methods

• Patients with DM who underwent PP implant surgery from 2011-2017 were identified from a single surgeon’s database. Patients without A1c values or follow-up at 1 year were excluded.

• Single variable analysis was completed using Two-sided Student’s T-tests and Pearson’s Chi-Squared tests for continuous and categorical variables respectively.

• Primary outcome of uncontrolled hyperglycemia was represented by Hemoglobin A1c >9% at most recent follow-up.

Table 1. Univariate Analysis Comparing Non-Delayed and Delayed Patients

Table 2. Logistic Regression Assessing Associations with Weight Gain

Results

• Median preoperative HbA1c was higher (8.3 vs. 6.9%) in delayed men (p=0.002).

• Among delayed patients, insulin was started or increased at initial urological evaluation in seven (50%).

• At a median 34 months follow-up, most men maintained HbA1c values <9% in both groups (78.6% vs. 85.1%), with similar HbA1c values in non-delayed patients (median 8.1 vs. 7.1%, p=0.11).

• Insulin use at follow-up was significantly different between delayed and non-delayed patients (92.9% vs. 55.4%, p=0.008), but change in BMI was not (median +0.2 vs. 0.0, p=0.99).

• Device infection occurred in 1 patient (0.8%) whose surgery was not delayed.

Conclusions

• Quality improvement protocols requiring preoperative reduction in A1c may serve as catalyst to maintain lower A1c levels long-term by overcoming therapeutic inertia.

• Urologists can take advantage of this opportunity by implementing A1c quality improvement measures which may benefit men’s overall health long-term.