Retrospective Analysis of Hemoglobin A1C Levels in Plastic Surgery Patients with Post-Operative Morbidity: A Call to Action

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Purpose: According to the Centers for Disease Control and Prevention, the prevalence of diabetes has been steadily increasing in the United States. In 2010, based on fasting blood glucose or hemoglobin A1C levels, 11.3% of the population over age 20 had been diagnosed with diabetes with an additional 35% labeled as pre-diabetic. Among the known morbidities of diabetics is an increased risk for post-surgical complications such as infection and prolonged wound healing. Current literature recommendations in orthopedics and urology vary with threshold A1C levels ranging from 6.7 to 11.5 (respectively) to decrease complications. To optimize patient safety, a more precise target is ideal for the plastic surgery population undergoing elective procedures.

Methods: A retrospective chart review analyzed patients who underwent plastic surgery from January 2006-December 2013 (n=26327) in an academic practice at a Level I trauma center. The patients who subsequently developed periprosthetic or surgical site infections, wound healing difficulties or dehiscences, or fluid collections were identified. Data was analyzed to identify a trend in A1C levels as related to complications.

Results: A total of 981 patients (3.7% of patients from 1/2006-12/2013) with post-surgical complications were reviewed with 471 patients (1.8%) having documented diabetes. Forty-four diabetics were identified with an A1C level within 3 months of initial surgery or complication presentation (9.7%). The mean A1C level was 7.0 with a standard deviation of 2.0. In our patients with complications, 79% were between the ages of 50-60 years old. The majority of complications in patients with an A1C>6.5 was infectious (53%). Fasting glucose levels at the time of initial surgery were found to be elevated in 63% of patients with surgical site and periprosthetic infections when compared to patients suffering from delayed wound healing and wound dehiscence irrespective of age and A1C.

Conclusions: According to our study, hemoglobin A1C levels in diabetic patients over 7.0 can have a clinically significant link to post-operative complications. This preliminary study of long-term glycemic control and surgical complications will potentially help establish new surgical guidelines and pre-operative management of plastic surgery patients. It is imperative that more data is collected and more stringent documentation is implemented to precisely elucidate the link between A1C levels and post-surgical complications in our diabetic population which makes up nearly half of our practice's morbidity.