



AMERICAN SOCIETY OF
PLASTIC SURGEONS®

High Blood Sugar Levels Linked to Increased Wound Complications after Surgery, Reports Plastic and Reconstructive Surgery

Findings Prompt Call for 'Tighter Glucose Control During Surgery in High-Risk Diabetic Patients'

Arlington Heights, Ill. (September 30, 2013) – A new study released today shows that among patients undergoing surgery for chronic wounds related to diabetes, the risk of wound-related complications is affected by how well the patient's blood sugar levels are controlled before surgery. These findings appear in the October issue of *Plastic and Reconstructive Surgery*®, the official medical journal of the [American Society of Plastic Surgeons](#) (ASPS).

The risk of serious wound complications is more than three times higher for patients who have high blood glucose before and after surgery, and in those with poor long-term diabetes control, according to the study by ASPS Member Surgeons, Drs. Mathew Endara and Christopher Attinger of the Center for Wound Healing at Georgetown University, Washington, DC. The researchers emphasize the need for "tight control" of glucose levels before surgery for diabetic patients at high risk of wound complications.

High Blood Glucose Levels Linked to Higher Risk of Wound Complications

The researchers analyzed rates of wound-related complications in 79 patients undergoing surgery for closure of chronic wounds—a common and troublesome complication of diabetes. Blood glucose levels were measured five days before and after surgery. Hemoglobin A1c, a key indicator of long-term diabetes control, was measured an average of two weeks before surgery.

Blood glucose levels and diabetes control were analyzed as risk factors for wound dehiscence (a serious complication in which the surgical incision re-opens), wound infections and need for repeat surgery. Blood glucose levels over 200 were considered to represent elevated blood glucose (hyperglycemia).

The results showed a higher risk of wound complications in patients who had high blood glucose levels either before or after surgery. For example, wound dehiscence occurred in about 44 percent of patients who had high glucose levels before surgery, compared to 19 percent of those without preoperative hyperglycemia.

The risk of wound dehiscence was also higher for patients with high blood glucose levels after surgery and for those with high hemoglobin A1c levels (that is, poor long-term diabetes control). With adjustment for other factors, the risk of wound dehiscence was more than three times higher for patients with hyperglycemia or elevated hemoglobin A1c around the time of surgery.

Need for 'Tight Control' of Glucose Levels during Surgery

Patients with wide swings in blood glucose levels—variation of more than 200 points—were about four times more likely to undergo repeat surgery. Otherwise, blood glucose levels and hemoglobin A1c were unrelated to the risk of reoperation or wound infections.

In recent years, tight control of blood glucose levels has been shown to improve a wide array of outcomes in patients with diabetes. For patients with chronic skin ulcers occurring as a complication of diabetes, hyperglycemia has been linked to delayed wound healing and an increased risk of infections. Surprisingly, the new study is one of the first to look at how blood glucose levels affect the risk of complications in patients undergoing surgical treatment for chronic diabetes-related wounds.

"Chronic and perioperative glucose management in high-risk patients undergoing surgical closure of their wounds is significantly associated with outcomes," Dr. Attinger and colleagues write. They note that episodes of high blood glucose can occur around the time of surgery even in many patients with previously good diabetes control.

The results help to make the case for "tighter glycemic control" in diabetic patients undergoing surgery with a high risk of wound complications, Dr. Attinger and co-authors believe. They note that surgeons may need to consult with specialists to manage diabetes control in these "medically complex patients." However, more research will be needed to confirm whether tighter control of blood glucose levels around the time of surgery will actually reduce the rate of wound-related complications.

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The American Society of Plastic Surgeons (ASPS) is the world's largest organization of board-certified plastic surgeons. Representing more than 7,000

Member Surgeons, the Society is recognized as a leading authority and information source on aesthetic and reconstructive plastic surgery. ASPS comprises more than 94 percent of all board-certified plastic surgeons in the United States. Founded in 1931, the Society represents physicians certified by The American Board of Plastic Surgery or The Royal College of Physicians and Surgeons of Canada. ASPS advances quality care to plastic surgery patients by encouraging high standards of training, ethics, physician practice and research in plastic surgery. You can learn more and visit the American Society of Plastic Surgeons at PlasticSurgery.org or Facebook.com/PlasticSurgeryASPS and Twitter.com/ASPS_news.