

Postoperative high blood sugar appears to be associated with surgical site infection

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High blood glucose levels after surgery may be an important risk factor for infection at the surgical site in patients having general surgery, according to a report in the September issue of *Archives of Surgery*.

Surgical site infection accounts for 14 percent to 17 percent of hospitalacquired infections, making it the third most common type of infection acquired at health-care facilities and the most common among patients having surgery, according to background information in the article. "Studies have shown that these infections prolong the hospital length of stay after surgery, increase rehospitalization rates and dramatically increase the use of emergency services and health care costs," the authors write.

Ashar Ata, M.B.B.S., M.P.H., and colleagues at Albany Medical College, Albany, N.Y., reviewed the medical records of patients who had general or vascular surgery between Nov. 1, 2006, and April 30, 2009. A total of 2,090 patients were randomly selected from a quality improvement database and then matched with medical records to obtain information about postoperative glucose values. These values were available for 1,561 patients, including 559 who had vascular surgery, 226 who had colorectal surgery and 776 who had a type of general surgery other than colorectal.

Overall, 7.42 percent of the patients developed surgical site infections, including 14.11 percent of those who had colorectal surgery, 10.32 percent who had vascular surgery and 4.36 percent of those who had



other general surgery.

Among general surgery patients, factors associated with surgical site infection included age, emergency status, physical status as classified by the American Society of Anesthesiologists, time in surgery, diabetes and high postoperative blood glucose (hyperglycemia). However, after adjusting for postoperative <u>blood glucose level</u>, all other factors were not significant predictors of infection. A subanalysis of colorectal surgery patients found that a postoperative serum glucose level higher than 140 milligrams per deciliter was the only significant predictor of surgical site infection.

Among <u>vascular surgery</u> patients, operative time and diabetes were the only significant predictors of surgical site infection, which was not associated with postoperative hyperglycemia.

Hyperglycemia may impair the immune system, and insulin may have anti-inflammatory and other anti-infective activities. However, it is possible that the accumulation of other risk factors for surgical site infection cause hyperglycemia rather than vice versa; hence, further study is needed, the authors note.

"In conclusion, we found postoperative hyperglycemia to be the most important risk factor for surgical site infection in general and colorectal cancer surgery patients, and serum glucose levels higher than 110 milligrams per deciliter were associated with increasingly higher rates of post-surgical infection," they continue. "If hyperglycemia is confirmed in future prospective studies with better postoperative glucose data to be an independent risk factor for postsurgical infection in general <u>surgery</u> <u>patients</u>, this would give surgeons a modifiable variable to reduce the incidence of postoperative infection."

More information: Arch Surg. 2010;145[9]:858-864.



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