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The outcome of perioperative wound infection after total hip and knee arthroplasty

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Dear Editor:

Total joint arthroplasty has been proven as one of the most effective surgical procedures in medicine, and, with an aging population, the demand for joint arthroplasty will continue to rise. As successful as joint arthroplasty has been, there are few complications in orthopaedics worse than an infected prosthesis.

We read with interest the study entitled "The outcome of perioperative wound infection after total hip and knee arthroplasty" (Int Orthop 26(1):40–43), where the authors attempt to identify factors that predispose patients to prosthetic infection after wound infection. The authors found that wound dehiscence, wound hematoma, and postoperative pyrexia *did not* predict the development of prosthetic infection; however, wound discharge was a significant factor. Their study was a 10-year retrospective review of 6,782 patients, and, while it appears to give the reader some valuable information, it does not give the full story.

We conducted a similar study entitled "Predictors of wound infection in hip and knee-joint replacement: Results from a 20-year surveillance program." We hypothesized that, by studying total knee (TKA) and total hip (THA) arthroplasty subjects, it would be possible to (1) confirm correlation between surgical site infection (SSI) and deep wound infection (DWI), and (2) identify the combination of preoperative and manageable intra- and postoperative factors that predispose subjects to SSI.

The study was a matched controlled cohort study at a tertiary veteran affairs medical center. All patients undergoing TKA ($n=1,181$) and THA ($n=1,124$) during the pe-

riod 1977–1995 were evaluated prospectively at the end of a 30-day postoperative period. Thirty-three patients who developed SSI during this period constituted the study group, while the control group was 64 matched subjects who did not develop SSI.

A chart review was applied to abstract DWI cases during the first 18 months postoperatively for the study group and for an average of 6.7 years for the control group (range 5–18.2 years). Potential risk factors for SSI were used as predictors of SSI in a logistic regression analysis. During the 18-month observation period, 19 out of the 33 study subjects (58%) developed DWI. No DWI was registered in the control group (the difference was significant – $P<0.0001$). Of the nine preoperative, five intraoperative, and five postoperative factors examined, only hematoma formation (odds ratio=11.8; $P=0.001$) and days of postoperative drainage (odds ratio=1.32; $P=0.01$) were significant predictors of SSI. The cases consumed more health care resources at all stages of the medical process.

Our results (1) confirm the strong correlation between SSI and the probability of developing DWI, and (2) indicate that hematoma formation and persistent postoperative drainage increase the risk of SSI. We hypothesize that postoperative monitoring of patients for hematoma and persistent drainage enables earlier intervention that may lower the risk of developing SSI and subsequent DWI.

The purpose of this letter is to provide additional information to orthopedists facing the potentially devastating complication of prosthetic infection. Based on our results, we are aggressive with irrigation and debridement at day 7 of wound drainage or the presence of wound hematoma, or both.

Sincerely
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