Abstract 10

One-Year Incidence of Postoperative Troponin Elevations in Patients Undergoing Major Orthopedic Surgery

Michael Urban, MD, PhD; Stephen Wolfe, BS; Niel Sanghevi, BS; and Steven Magid, MD
Hospital for Special Surgery, New York, NY

Introduction: Patients who are candidates for major orthopedic surgery, or arthroplasty, are often elderly and have multiple comorbidities. These patients are routinely evaluated for postoperative myocardial damage/infarction (PMI). Using cTnI analysis for evidence of a PMI, we tracked the incidence of PMI preoperative risks and complications associated with major orthopedic procedures over 1 year.

Methods: With Institutional Review Board approval, all patients with cardiac risk factors undergoing major orthopedic procedures from 7/1/07 to 6/30/08 were assessed for a PMI using cTnI analysis (reference level 0.02 ng/mL. Patients were identified using an electronic ordering system, SMM Eclipsys. Preoperative cardiac risk factors and postoperative complications were tracked using a Web-based medical information management system, My Medical Files (MMF). Data were entered into SPSS for Windows; multivariant correlation analysis.

Results: During the 1-year analysis period, 10,627 nonambulatory orthopedic procedures were tracked and 807 patients with cardiac risk factors were assessed for PMI. Of the 807 patients, 104 (12.9%) had postoperative elevated cTnI levels; the associations with types of surgery were as follows: total knee arthroplasty, 11.3%; total hip arthroplasty, 10%; and posterior spinal fusions, 17%. Among the patients with PMI, 48% had postoperative cardiac complications (PCC); their mean peak cTnI level was 1.51 ng/mL compared with 0.63 ng/mL for those without PCC. More than half (53%) of the PCCs occurred in patients who had had THA.

Discussion: For purposes of cardiac risk stratification, orthopedic surgery is considered intermediate-risk (1%–5%). Our analysis reveals a PMI incidence of 0.9% for all nonambulatory orthopedic procedures. The incidence was significantly higher (12%) among patients with cardiac risk factors who were undergoing arthroplasty or spinal fusion. This analysis also was unable to demonstrate a protective effect associated with the administration of statins or beta-blockers. Patients with higher cTnI releases were more likely to have PCCs.