## Paper #14

## The Impact of Delirium on Perioperative Complications in Primary Total Hip Arthroplasty

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**Introduction:** The number of elderly patients undergoing total hip arthroplasty (THA) is increasing. The relationship between delirium and peri-operative complications is not well described. We hypothesize that delirium would be associated with increased complication rates in patients undergoing primary elective THA.

Methods: Using the Nationwide Inpatient Sample (NIS), we reviewed 410,241 patients undergoing primary elective THA between 2000 and 2009. We used International Classification of Disease version 9 codes to identify patients with all subtypes of delirium. Patients with delirium (2,768 patients) were compared to a control group without delirium (407,473 patients). Major complications were defined as mortality, pulmonary embolism, myocardial infarction, stroke, pneumonia, and acute renal failure. Minor complications were defined as wound infection, seroma, deep vein thrombosis, dislocation, wound dehiscence, and hematoma. Descriptive statistics of age, sex, length of stay, and Elixhauser comorbidities were assessed for both groups. Multivariate logistic regression models were constructed to assess the association of delirium with major and minor surgical complications. Statistical significance was set at p < 0.01.

**Results:** Patients with delirium undergoing primary elective THA were older (mean 75.0 vs. 65.0, p < 0.0001), more likely to be male (56% vs. 52%, p < 0.0001), had longer length of stay (mean 5.7 vs. 3.8, p < 0.0001), and had higher Elixhauser comorbidity counts (mean 2.8 vs. 1.4, p <0.0001). Chi squared analysis demonstrated that patients with delirium were more likely to have both major surgical complications (11% vs. 3%, p<0.0001) and minor surgical complications (17% vs. 5%, p<0.0001). In order to account for demographic variance in comparative groups, multivariate logistic regression was performed. Multivariate logistic regression models using Elixhauser comorbidities, age, and sex as covariates demonstrated that delirium was independently associated with major surgical complications (OR 2.0 95% CI: 1.7 to 2.3) and minor surgical complications (OR 2.0 95% Cl 1.7 to 2.3) in patients undergoing primary elective THA.

**Conclusions:** Delirium is an independent risk factor for both major and minor surgical complications in primary elective THA.

