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Comparing Patient Demographics and Postoperative Outcomes between Acute, Chronic, and Acute on Chronic Nontraumatic Slipped Capital Femoral Epiphysis

Introduction: Nontraumatic slipped capital femoral epiphysis (SCFE) can be divided into three categories: acute; chronic; acute on chronic (an acute exacerbation of chronic nontraumatic SCFE). The purpose of this study was to compare patient characteristics and adverse postoperative outcomes between these three groups of patients. Studies utilizing the ACS National Surgical Quality Improvement Program (NSQIP) Pediatric database to make these comparisons are lacking. Methods: This retrospective analysis of the ACS NSQIP Pediatric database identified patients with relevant ICD-10 codes for acute, chronic, and acute on chronic nontraumatic SCFE. Postoperative outcomes, including complications, reoperations, readmissions, and extended length of stay, were assessed through univariate analysis and multinomial logistical regression. Results: Among 391 patients, acute SCFE (n=71) exhibited no adverse outcomes. Chronic SCFE (n=281) showed few complications (1.1%), reoperations (0.7%), and extended stays (0.7%). Acute on chronic SCFE (n=39) similarly had no adverse outcomes. Univariate analysis showed significant differences in males (p=0.048) and usage of SCFE single or multiple pinning percutaneous fluoroscopic procedures (p=0.049) between acute, chronic and acute on chronic nontraumatic SCFE groups. ANOVA showed no differences in length of stay, and age between the three groups (all p >0.05). Univariate analysis also showed no differences in adverse postoperative outcomes between the three groups (all p >0.05) (Table 1). Multinomial logistic regression analysis showed that acute on chronic nontraumatic SCFE is more likely than acute nontraumatic SCFE to have male patients (1.8 [1.0 – 3.0]; p =0.035). Discussion and Conclusion: Male patients are at a more significant risk of developing acute on chronic nontraumatic SCFE over acute nontraumatic SCFE. This builds on prior literature showing significant risk association between male patients and development of SCFE.