Bedside Hip Aspiration Results in Decrease in Total General Anesthesia Time in Pediatric Patients: A Multicenter Study

Zachary Vincent Braig[1], Pratik Pradhan, Meagan E Tibbo, Horacio Padua, William J Shaughnessy[2], Anthony A Stans, A. Noelle Larson, Benjamin J. Shore[3], Todd A Milbrandt
[1]Mayo Clinic, [2]Mayo Clinic Spine Sugery Fellowship, [3]Children's Orthopedic Surgery Foundation

INTRODUCTION: Septic arthritis of the hip joint is a potentially devastating disease in the pediatric population. Evaluation includes hip aspiration to evaluate the synovial fluid. This fluid can be obtained either in operating room (OR) under general anesthesia or via bedside aspiration under moderate sedation. The purpose of this study, therefore, is to compare these two approaches and delineate the anesthetic time required.

METHODS: A database query conducted at two academic institutions identified all patients under the age of 17 who underwent hip aspiration between 2000 and 2017. At one institution, aspiration was performed in the OR under general anesthesia. Patients were kept anesthetized until cell count was complete. At the second institution, aspiration was performed in the emergency room at bedside under sedation. The medical record was reviewed for demographic data, hip aspiration results, diagnoses, treatment, and anesthesia time.

RESULTS: Two-hundred-thirty-three patients (233 hips) with a mean age of 7.2 years were identified. Seventy-five patients underwent aspiration in the OR, and 158 patients underwent bedside aspiration. One-hundred (43%) patients were diagnosed with septic arthritis. In total, one-hundred-sixteen (50%) patients underwent irrigation and debridement (I&D). Patients with a negative aspiration performed in the OR averaged 87 minutes under anesthesia, while patients with a negative aspiration performed at bedside averaged 29 minutes under sedation. Patients with a negative aspiration performed in the OR after 5pm averaged 99 minutes under anesthesia, and 73 minutes under anesthesia when performed between 7am and 5pm ($p<0.01$). Seventy-eight (49%) patients who underwent bedside aspiration did not require operative intervention and therefore avoided any general anesthesia.

DISCUSSION AND CONCLUSION: Pediatric hip aspiration performed in the OR results in prolonged anesthesia times while synovial fluid is transported and processed. Anesthesia times are significantly longer after 5pm. Aspiration performed at bedside resulted in significantly less anesthesia exposure, with 1 of every 2 patients undergoing bedside aspiration avoiding general anesthesia altogether.