

Use and Efficacy of Antifibrinolytic Agents in Patients Undergoing Growth Friendly Surgery for Neuromuscular Scoliosis

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INTRODUCTION:

There is a paucity of data on the use, efficacy, and safety of antifibrinolytic agents (AF) in patients with neuromuscular scoliosis undergoing growth-friendly instrumentation. Previous studies have shown mixed results of AF agents in young patients with neuromuscular conditions, and other authors have expressed concerns regarding adverse effects in this medically fragile population. The purpose of this study was to investigate the rate of use of AF agents for growth-friendly surgery in patients with neuromuscular scoliosis, and assess its impact on blood loss and transfusion requirements.

METHODS:

This is a retrospective cohort study of patients from a multicenter spine study group with neuromuscular scoliosis that underwent an index growth-friendly procedure. Patients with a history of venous thromboembolism and those undergoing revision surgery or lengthening surgery were excluded. Perioperative data was collected including patient demographics, type of instrumentation, use and type of AF agent, estimated blood loss (EBL), use and volume of cell saver, and intraoperative blood transfusion. Univariate statistics were used to determine differences.

RESULTS:

This study included 556 patients with a mean age of 7 years (SD: 2.5). Of these patients, 294 patients were managed with VEPTR/TGR instrumentation and 261 patients were managed with MCGR instrumentation. AF agents were used in 36% of index cases. In cases with AF use, TXA was the most frequently used agent (TXA: 68%, ACA: 21%). There was no statistical difference in EBL between patients who received AF agents compared to patients that did not receive AF agents (AF=184.9ml, no AF=103ml, $p=0.23$). In addition, there was no difference in cell saver volume (AF=127ml, no AF=145ml, $p=0.88$). The overall rate of blood transfusion was low (8.31%). In this cohort, and there was no significant difference in transfusion rates between groups (AF=7.6%, no AF=8.8%, $p=0.7$).

DISCUSSION AND CONCLUSION:

AF agents are being used for patients undergoing growth friendly procedures with TXA being the most commonly used AF. However, there is no significant difference in EBL, cell saver volume, and intraoperative transfusion rates between patients that do or do not receive AF agents for these procedures. Additional studies are needed to validate these results, as well as determine their safety and value in neuromuscular patients. Surgeons should individualize their treatment plan and consider this data when deciding strategies to minimize blood loss in this medically fragile group.