Paper #14: Surgeon Experience Does Not Reduce Complications Associated with VEPTR Surgery in Early Onset Scoliosis

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Summary: The use of growth friendly techniques to manage Early Onset Scoliosis is associated with frequent complications. This study examines whether surgeon experience results in fewer complications over time. 95 patients underwent 915 surgeries over a 10 year period by a single surgeon. The overall complication rate was 20% per year and did not change despite increasing surgeon experience, suggesting that the significant co-morbidities in this population are responsible for the high rate of complications.

Background: Children with Early Onset Scoliosis (EOS) are diverse and complex, and frequently have multiple associated co-morbidities. The use of growth friendly techniques to manage EOS is associated with frequent complications. The purpose of this study is to determine if surgeon experience over time results in a decreased frequency of complications related to repetitive surgeries.

Methods: This is a retrospective review of an IRB approved prospective database 915 consecutive VEPTR surgeries including initial implants, expansion and exchanges by a single surgeon between 2003 and 2012. Population demographics and complications were collected. Statistical analysis including Pearson correlation was conducted to examine the association between the rate of complication and the number of surgeries performed.

Results: 95 patients underwent 915 surgeries during the study period. The average age was 7.7 years (0-17). There was an average of 11.5 surgeries per patient (2-25). 173 complications were reported with a mean of 2.35 per patient. Sixteen patients had no complications, while the majority of patients had 1-2 complications, with one patient having 15. The rate of complications did not increase with increasing numbers of surgeries (r=0.028; p=.831). 96 complications were classified as disease related and 77 were device related. The overall rate of total complications remained steady at approximately 20% /year . Device related complications alone remained steady at 8.6% per year despite increasing experience of the surgeon.

Conclusion: Complications are a relatively common and expected event in managing EOS using growth-friendly instrumentation. Despite increasing surgeon experience with VEPTR expansion and exchange surgeries, the rate of complications remained consistent over a 9 year period. This may be a reflection more of the complexity of this patient population rather than the experience of the surgeon.