Central Venous Access Device (CVAD) Insertion Procedure for Pediatric Patients with Severe Hemophilia A - Trends in Factor VIII (FVIII) Replacement Therapy

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Pediatric Hemostasis

Introduction

- Severe hemophilia A patients benefit from a CVAD to deliver routine or urgent doses of FVIII. CVAD insertions require careful preoperative preparation and postoperative management, including administration of FVIII to help establish hemostasis.[1]
- Due to lack of guidelines to outline optimal dosing, administration of FVIII is variable and can be costly to the patient and healthcare system.
- Our research describes the local experiences of FVIII replacement therapy during CVAD insertions at McMaster Children's Hospital, in Hamilton, Ontario.
- Following our previous publication, we further optimized our local protocol.

Methods

- A retrospective chart review was conducted.
- Data was collected from pediatric patients undergoing the CVAD insertion surgery between 2010 and 2015.
- Patients were 0 to <18 years of age with severe hemophilia A.
- Reviewed patient charts and collected information about FVIII replacement therapy for the CVAD insertion.
- Additional information collected included surgical outcomes, days spent in hospital, and complications.
- Patients were excluded if they had inhibitors prior to CVAD insertion, or if they had a concurrent procedure.

Results

- A total of 7 CVAD insertion or replacement surgeries were reviewed.
- Average perioperative Factor VIII dose was 660.3 IU/kg.
- The average number of days in hospital was 4.1, and the average number of days receiving postoperative doses was 6.3.
- The average patient age was 2.7 years and average weight was 14.2 kg.
- None of the patients developed inhibitors, nor did they experience unsuccessful CVAD insertions.
- Two patients required a second attempt/approach to insert the catheter during surgery, although neither was attributed to insufficient hemostasis.

Discussion/Conclusions

The current study attempts to describe the experience at McMaster Children's Hospital for CVAD insertions. The average doses have decreased since the 2004 to 2010 time period. The lower doses do not increase hemostatic complications during surgery or inhibitor development.

These results may help develop optimal dosing schedules for CVAD insertion or replacement surgeries.

Figure 1: Total Perioperative Factor VIII Doses by Year

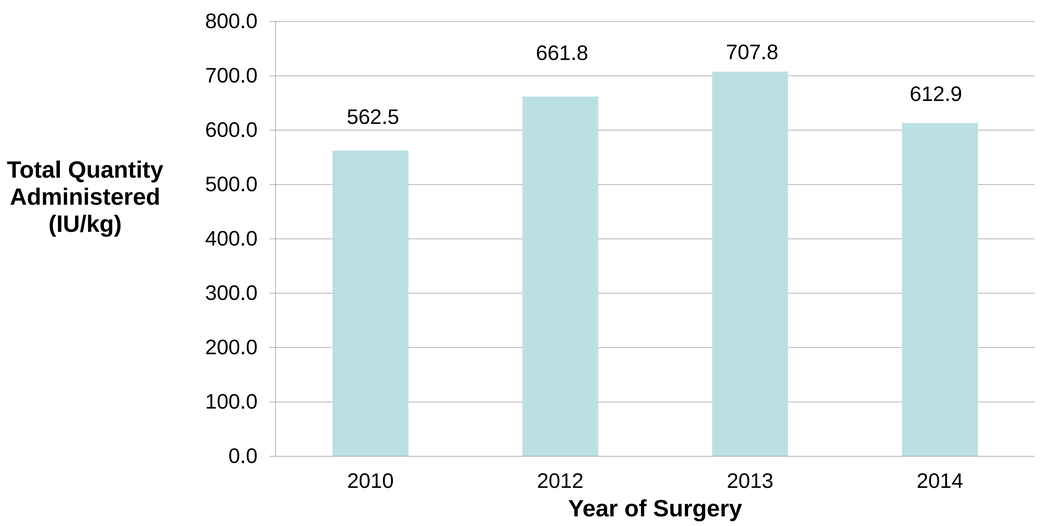

Figure 2: Perioperative Factor VIII Management for CVAD Insertions by Year

Year of Surgery	Number of Cases	Preop dose (IU/kg)	Postop dose (IU/kg)	Total Dose (IU/kg)
2010	1	74.4	488.1	562.5
2012	2	67.7	594.0	661.8
2013	3	81.7	626.0	707.8
2014	1	52.2	560.7	612.9

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References

1. Valentino LA, Kawji M, Grygotis M. Venous access in the management of hemophilia. *Blood Rev* 2011; 25:11–15.