

Using the ATHNdataset to answer research questions

CVAD Treatment Outcomes
Working Group

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Background

- Prophylaxis with recombinant factor VIII can prevent joint damage and decrease the frequency of joint and other hemorrhages in young boys with severe hemophilia¹.
- Obtaining venous access is a challenge for young children and some adults with hemophilia.
- Placing a central venous access device (CVAD) usually a portacath, is often critical to adherence with prophylactic regimes.

¹Manco-Johnson, MJ et al, New England Journal of Medicine. 2007 Aug 9;357(6):535-44.

Background

- While the infection rate in CVAD has been studied for children on prophylaxis², research to identify evidence-based protocols to provide optimal hemostatic coverage during the placement and healing of the CVAD is lacking.
- This has led to significant diversity in practice among hemophilia treatment centers.

² Hacker, MR et al, Journal of Pediatric Hematology and Oncology 2007 Jul;29(7):458-64.

Preliminary Research Question

Does the intensity and duration of factor replacement affect the incidence of bleeding episodes in patients with hemophilia who undergo CVAD placement?

Process Questions

- Can the ATHNdataset provide adequate retrospective data to support the analysis of data elements to answer the research questions?
- Can the ATHNdataset capture/report the data elements required to perform an analysis and answer the research question?

Objectives

- To identify variables that may influence post- surgical bleeding episodes in CVAD placement.
- To retrospectively review data elements in the ATHNdataset extracted from personal medical records.
- To analyze the differences in bleeding outcomes through standardized queries of the ATHNdataset and statistical analysis.

Methods

- Variables were identified that may influence bleeding episodes in CVAD placement.
 - patient characteristics
 - procedural characteristics
- Complications were also identified that included but were not limited to bleeding episodes.
- Data elements in the ATHNdataset were then identified to correlate with these variables.

Methods

- Data elements that could not be identified in the ATHN dataset were reported in the “notes” field to allow for consideration even if not reported by querying the data set.
- Research questions were further delineated.
- Three hemophilia treatment centers agreed to participate:
 - Children’s National Medical Center (CNMC)
 - Emory University
 - Virginia Commonwealth University

Methods

- Data from patients who underwent a CVAD placement were reviewed for standardization.
- Since actual data from three centers may not provide the incidence of outcomes to be investigated to determine the functionality of WT, “dummy” data was also entered.
- Since the fields required for these queries did not exist in Lab Tracker, the existing data in WT is not available in a format that can be queried.
- Preliminary queries were run in conjunction with the ATHN Technical Support Team and standardized queries are being developed.

Research Questions

- What is the incidence of post CVAD insertion bleeding, stratified by severity of disease, platelet count, history of CVAD placement and inhibitor status?
- Does the duration, intensity and method (bolus vs. continuous infusion) of factor product usage in the perioperative period affect bleeding from CVAD insertion?
- Does the interval between factor product usage in the perioperative period and the treatment regime affect bleeding from CVAD insertion?

Using the ATHNdataset for Research

Question: What are the local regulatory requirements to conduct new research using the ATHNdataset?

Answer: May depend upon the original institution's regulatory requirements.*

* Consult with your Institutional Review Board (IRB)

CNMC's Experience: Required to Obtain IRB Approval

- CNMC's IRB required site to obtain consent/assent for patients participating in the ATHNdataset.
- Because the aims of the new “protocol” (study questions) will be different from the original aims of the ATHNdataset, IRB is requesting opening a new protocol with different study aims and reference of the ATHNdataset.

CNMC's Experience: Required to Obtain IRB Approval

- For the patients who **have** been consented/assented under the ATHNdataset:
 - Do not have to re-consent for the new “study” because we have language contained within the consent document where patient/guardian indicates whether or not their information can be used for future research.

CNMC's Experience: Required to Obtain IRB Approval

Please indicate your approval of any or all of the following by initialing next to the statement:

My personal health information may be stored in the above named database for future analysis related to this study.

Yes No _____ initials

My personal health information may be stored in the above named database for future analysis related thrombosis and hemostasis.

Yes No _____ initials

My personal health information may be stored in the above named database. Researchers may contact me to request my authorization for future studies that are not related to this study or the disease named above.

Yes No _____ initials

My personal health information may be stored without any of my identifying information for use in other studies of other diseases.

Yes No _____ initials

CNMC's Experience: Required to Obtain IRB Approval

- If the patient/guardian has authorized the use of their information for future studies, CNMC would obtain a waiver of consent under the new “study” to document that the patient has already been consented under the ATHNdataset and have agreed to participate in future analysis/studies.

CNMC's Experience: Required to Obtain IRB Approval

- For patients who **have not** been consented under the ATHNdataset:

- Consent under the initial ATHNdataset study

OR

- Consent under the “new study” (the consent document would reference the ATHNdataset)

Emory's Experience: Not required to Obtain IRB Approval

- Emory's Office of Research Compliance did not require that we obtain IRB approval for patients to participate in the ATHNdataset.
- The ATHNdataset is explained to patients, and they are offered the opportunity to sign the ATHNdataset Authorization. Data is not submitted unless the patient signs the authorization.
- For any research studies supported by ATHN utilizing the Web Tracker platform, IRB approval must be obtained.

What Data Elements Are Collected?

- Patient Characteristics
- Procedure Characteristics
- Complications

Patient Characteristics

- DOB
- Diagnosis
- Severity
- Inhibitor Status
- Co-morbidities
- Previous central line
- Platelet count (pre-op)

Procedure Characteristics

- **Regime**
 - Product type and dose
 - Infusion type (continuous vs. bolus)
 - Length of treatment
 - Peak and Trough Levels
 - Time to transition to prophylaxis after regime
- **Procedural Issues**
 - Protocol for accessing port (How soon is port accessed, how frequently accessed, technique)
 - Type of port
 - Anatomical location of port
 - Length of stay
- **Reason for CVAD placement or removal**

Complications

- Bleeding
- Thrombosis
- Fever
- Infection

SNOMED Choices for Complications

- Complications of implant
- Complication of surgical procedure
- Hematoma
- Infection after infusion, injection, transfusion and/or vaccination
- Infection of central venous catheter exit site
- Phlebitis after infusion
- Thromboembolism after infusion

Where do we enter the data points in WebTracker?

WebTracker Data Entry

Patient Characteristics							
Location in WT	DOB	Diagnosis	Severity	Inhibitor Status	Co-Morbidity	Previous Central Line	Platelet Count (pre-op)
Tab	Patient	Diagnoses (check primary)	Lab Results	Diagnoses	Diagnoses	Surgeries/ Procedures	Lab Results
Subtab	Demographics	Diagnosis	Test Results	Diagnosis	Diagnosis		Test Results

WebTracker Data Entry

Procedural Characteristics

Regime					
Location in WT	Product Type/ Dose	Infusion Type (Cont. vs. Bolus)	Length of Treatment	Peak/ Trough Levels	Time to Transition
Tab	Bleeds/ Infusions	Bleeds/ Infusions	Medication	Lab Results	Bleeds/ Infusions
Subtab	Product Usage	Product Usage	Medications	Test Results	Product Usage

WebTracker Data Entry

Procedural Characteristics					
Procedural Issues					Placement/Removal Reason
Location in WT	Protocol	Port Type *	Anatomical Location	Length of Stay	Reason *
Tab	Surgeries/Procedures	Surgeries/Procedures	Surgeries/Procedures	Visits	Surgeries/Procedures
Subtab		* Document port type under "Notes" field			* Document removal reason under "Notes" field

WebTracker Data Entry

Complications *				
Location in WT	Bleeding	Thrombosis	Fever	Infection
Tab	Surgeries/ Procedures	Surgeries/ Procedures	Surgeries/ Procedures	Surgeries/ Procedures
Subtab	* “Search SNOMED” to select complication	* “Search SNOMED” to select complication	* “Search SNOMED” to select complication	* “Search SNOMED” to select complication

Incidence of Post-CVAD Bleeding

By Inhibitor Status

Post CVAD Status	Inhibitor Status		
	Current Inhibitor	Historical Inhibitor	No Inhibitor
Bleed			
No Bleed			
TOTAL			

Incidence of Post-CVAD Bleeding

By Disease Severity

Post CVAD	Disease Severity		
Status	Mild	Moderate	Severe
Bleed			
No Bleed			
TOTAL			

Impact of Duration of Peri-Operative Treatment on Post-CVAD Bleeding

Post CVAD	Treatment		Duration
Status	≤72 hours	>72 hour – 1 week	> 1 week
Bleed			
No Bleed			
TOTAL			

Impact of Time to Transition* Factor Treatment on Post-CVAD Bleeding

Post CVAD	Time to Transition		
Status	≤72 hours	>72 hours – 1 week	>1 week
Bleed			
No Bleed			
TOTAL			

*Time to transition factor treatment is defined as time from peri-operative start of factor to resumption of usual treatment

Next Steps

- Develop protocol
- Define and receive commitment of technical assistance expertise from ATHN
- Recruit other centers to participate
- Submit protocols to IRB
- Collect and aggregate center reports
- Analyze results
- Evaluate and report findings