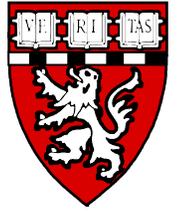




Management of Peripherally Inserted Central Catheters (PICC) in Pediatric Heart Failure Patients Receiving Continuous Inotropic Support

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BACKGROUND

- PICCs are a specific type of central venous access used in the medical management of pediatric heart failure patients
- Best practice regarding the management of PICC lines which cannot be intermittently flushed with heparin has not been discussed in the current literature

POPULATION OF INTEREST

- Maintaining a continuous inotropic infusion in the pediatric heart failure population is crucial in order to keep the patient asymptomatic and to satisfy UNOS listing criteria

AIM

- Describe and compare PICC line management in regards to heparin use in two cohorts of pediatric heart failure patients receiving continuous inotropic support through a single lumen of the catheter

MATERIALS AND METHODS

- A retrospective chart review was conducted to identify pediatric heart failure patients with a PICC line. Two cohorts were determined:
 - Those receiving low dose continuous heparin bifused with an inotropic infusion
 - Those receiving no heparin with inotropic infusion
- Demographics and clinical characteristics were compared; thrombolytic agent use and catheter days were also examined
- Catheter days were defined as the number of successive days the inotropic solution was infused without interruption

Table 1: Patient Characteristics

	Heparin (n=22) (%, range)	No Heparin (n=11) (%, range)	P-value
Age	1 (0-21)	14 (1-21)	.0001
Gender			.49
Male	59%	45%	
Race			.65
White	64%	82%	
Non-White	36%	18%	
Congenital Disease	55%	27%	.27
Acquired Disease	45%	82%	.07
Primary Procedure			.55
Reason for Admission			.01
Elective	14%	64%	
Emergent	64%	36%	
Unknown	23%	0%	
Number of PICC Lines			.39
1	73%	55%	
2	23%	36%	
3	5%	0%	
4	0%	9%	

Table 2: Outcomes

	Heparin (n=29) (%, median, or range)	No Heparin (n=18) (%, median, or range)	P-value
Type			.007
Single	24%	6%	
Dual	76%	83%	
Other	0%	6%	
Unknown	0%	6%	
Non-White	36%	18%	
Anti-Thrombolytic Intervention	28%	50%	.08
Line Duration	24 (4-93)	16 (3-49)	.07

RESULTS

- In comparing the two cohorts, both 'age at admission' (heparin group- median age of 1 year (<1yr -16) versus non-heparin group- median age 14 years (1-21) p= 0.001) and 'admission status' (heparin group- 14 (64%) versus non heparin group- 4 (36%) p= 0.01) were found to be significantly different
- Length of catheter days for the heparin group was a median of 24 (4-93 days) versus non heparin group 16 (3-49 days) p= 0.07
- Use of thrombolytic therapy for the heparin group was 8 (28%) versus the non heparin group 9 (50%) p= 0.08

CONCLUSIONS

- Although length of catheter days and use of thrombolytic therapy was not found to be statistically significant between the two cohorts, these findings were observed to be clinically significant and supportive of a bifused strategy of low dose continuous heparin infusion with an inotropic agent

IMPACT ON PRACTICE

- Maintaining a continuous inotropic infusion in pediatric heart failure patients is imperative to their care and health maintenance
- Interruption in their inotropic infusion may lead to symptom escalation and affect their transplant listing status
- Replacement of a clotted PICC line may also place the patient at added risk

