Posters

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Single Center Retrospective Comparison of Bivalirudin and Heparin for Therapeutic Anticoagulation in Pediatric Patients

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Single Center Retrospective Comparison of Bivalirudin and Heparin for Therapeutic Anticoagulation in Pediatric Patients

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Background

- Classically, unfractionated heparin (UFH) has been used for continuous anticoagulation in patients with thrombosis
- Bivalirudin is a newer agent and due to its different mechanism of action, has had reported benefits over UFH
- There is data supporting the use of bivalirudin over UFH in ECMO patients, but no direct comparisons have been investigated for therapeutic anticoagulation
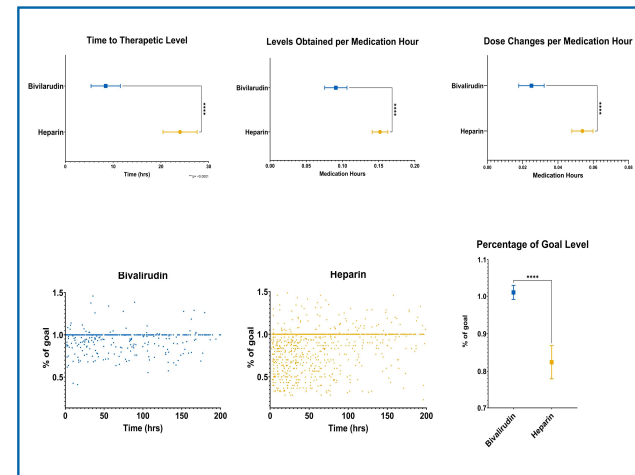
Methods

- A retrospective analysis of patients at Children's Mercy who received either UFH or bivalirudin between 2013-2022
- Lab variability, time to goal level, dose changes, labs, bleeding events, and transfusions were recorded
- A subanalysis of patients above and below the age of 6 months was performed

Results

- 46 patients received Bivalirudin and 135 patients received UFH
- The Bivalirudin group attained their goal level (aPTT: 60-90) at 8.6 hours while UFH reached goal (Anti-Xa: 0.3-0.7) at 24 hours
- Bivalirudin had fewer dose changes (0.025 vs 0.15 per medication hour), fewer monitoring labs (0.09 vs 0.15 per med/hr)
- During the infusions, bivalirudin was statistically closer to goal compared to UFH
- When ages were stratified above and below 6 months of age, the same effects were noted (see QR code below)

All Patients		
	Bivalirudin	Heparin
Total	46	135
Demographics		
Age: Mean (95% CI)	8.4 (6.3-10.4)	5.6 (4.4-4.7)
Male (%)	91 (67.4%)	25 (51.0%)
Medication		
Time to theraputic (95%CI)	8.60 (5.49-11.72)	24.00 (20.80 - 27.21)
Never therapeutic	0	25 (18.52%)
Duration (95% CI)	186 (131-241)	131 (105-158)
Labs		
Labs/medication hr mean (95%CI)	0.09 (0.08-0.1)	0.15 (0.14-0.16)
Transfusions (mean)		
Transfusion /1000 hours of medication (95% CI)		
Red blood Cell	1.97 (0.9-3.0)	9.74 (7.2-12.2)
Platelets	1.05 (-0.3-2.3)	1.75 (0.8-2.6)
Plasma	0.74 (-0.3-1.0)	4.48 (2.4-6.6)
Dose Changes		
Event/medication hr mean (95%CI)	0.025 (0.018-0.032)	0.05 (0.048-0.060)
Bleeding complicating therapy		
Bleeding/hemorrhage before starting medication	10 (21.7%)	7 (5.2%)
Bleeding Events		
Total	3 (6.5%)	22 (16.3%)
Bleed/1000 medication hours	0.34	1.14

Results

Time to Therapeutic Level | Levels Obtained per Medication Hour | Dose Changes per Medication Hour

Bivalirudin | Heparin

Percentage of Goal Level

Summary:

Pediatric patients who received bivalirudin compared to unfractionated heparin:
- ➔ Shorter time to therapeutic range
- ➔ Less lab variability
- ➔ Fewer dose changes
- ➔ Fewer monitoring labs
- ➔ Similar bleeding rates

Scan QR code for supplemental data and data stratified for age