

A comparison of heparin vs bivalirudin in patients undergoing percutaneous coronary intervention (PCI) in achieving therapeutic activated clotting time



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INTRODUCTION

- PCI is a standard strategy for patients needing immediate coronary reperfusion
- These procedures are performed by either radial or femoral access site
- Current guidelines recommend anticoagulant therapy including heparin or bivalirudin to reduce procedural complications such as thrombosis.
- ACT is used to maintain the degree of anticoagulation during the procedure
- Bivalirudin was introduced as an alternative to heparin because of its anticoagulant efficacy and its ability to reduce bleeding in prospective clinical trials
- Bivalirudin maybe associated with increased thrombosis
- The HEAT-PPCI trial suggests bivalirudin maybe associated with more stent thrombosis, recurrent infarction events and no difference in bleeding in comparison to heparin

STUDY OBJECTIVES

- Compare the ACT of bivalirudin to heparin
- Identify incidence of catheter related thrombosis and bleeding
- Compare vascular complications rates with radial versus femoral artery approach
- Evaluate the cost associated with the use of heparin or bivalirudin

METHODS

This retrospective study will include patients undergoing PCI with either the use of heparin or bivalirudin at two St. Rose Dominican hospitals: St. Rose Siena and St. Rose San Martin. This data will be collected by reviewing the drug usage report for both heparin and bivalirudin from January 2017 to August 2020.

INCLUSION/EXCLUSION

Inclusion	Exclusion
≥ 18 years old	Pregnancy
Undergoing PCI with either heparin or bivalirudin	Previous Heparin use in the past 24 hours

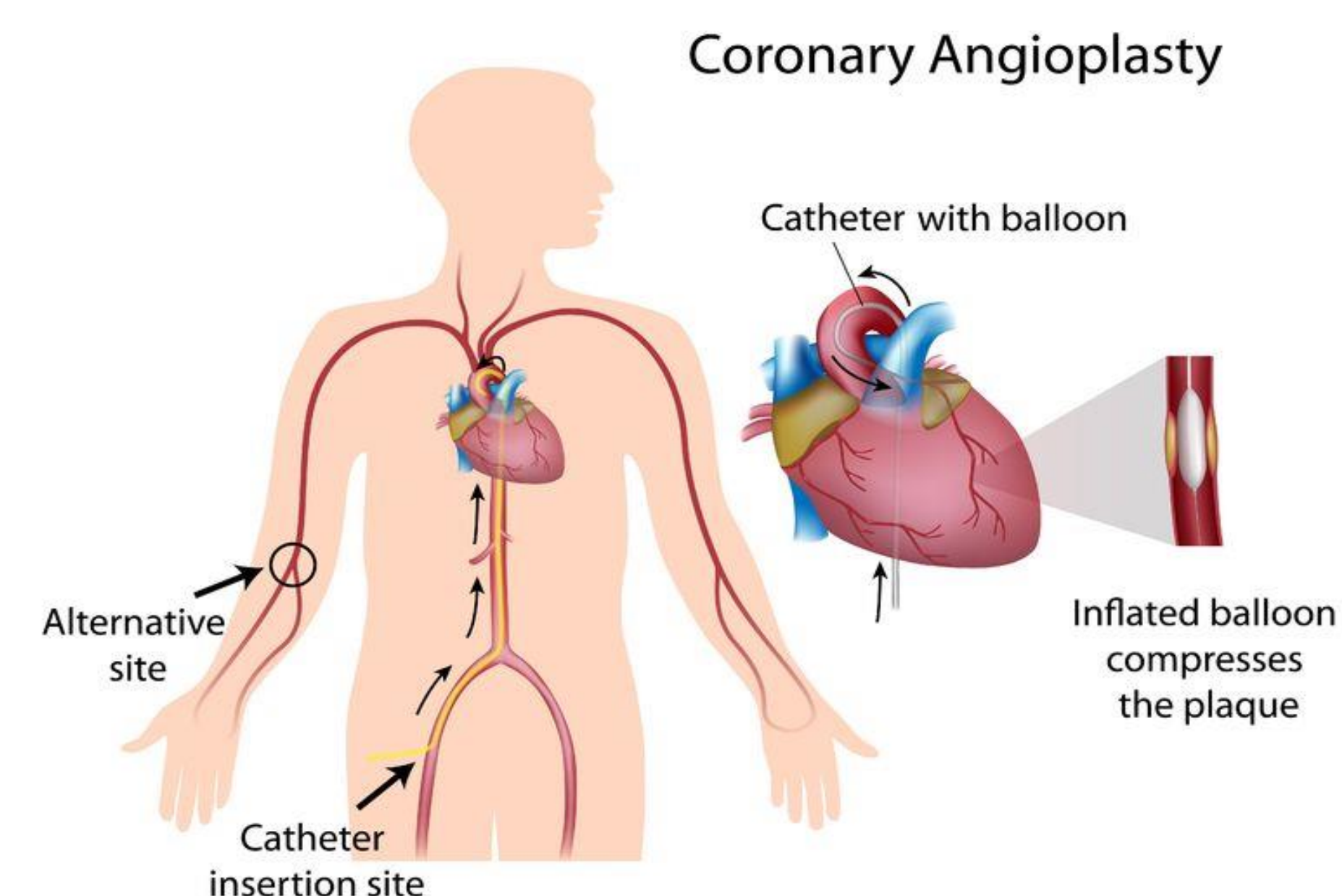
OUTCOMES

Primary:

- To evaluate and determine whether the use of bivalirudin will result in faster ACT compared to heparin in patients undergoing PCI

Secondary:

- Bleeding defined by BARC
- Use of dual antiplatelet therapy
- Vascular complications and the duration associated with radial versus femoral artery approach
- Drug cost comparison of heparin versus bivalirudin.



RESULTS

	Heparin N = 141	Bivalirudin N = 105	P-value
Sub therapeutic	16%	2%	0.0007
Therapeutic	52%	69%	
Supratherapeutic	33%	30%	
Avg. therapeutic ACT (seconds)	285	374	<0.0001
Time to therapeutic ACT (min) Mean ±SD	15 ± 9.48	14 ± 10.23	0.41

Discussion:

- More patients reached therapeutic ACT with bivalirudin
- No difference in time to reach therapeutic ACT
- No difference in secondary outcomes
- Significantly higher cost with bivalirudin

Limitations:

- Therapeutic window of ACT is smaller with heparin
- More patients with femoral artery approach

CONCLUSION

- More therapeutic ACT with bivalirudin compared to heparin during PCI
- Higher cost with bivalirudin compared to heparin
- No difference in bleeding

CONTACT

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DISCLOSURES

Authors of this presentation have nothing to disclose