

Activated Clotting Time Guided Heparinization in Endovascular Abdominal Aortic Aneurysm Repair

A Review of Compliance and Effectiveness of Trust Guidelines

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Introduction

Historically 5000 units of heparin has commonly been administered to provide perioperative anticoagulation during vascular surgery with little patient testing available (1-3). Following the introduction of activated clotting time (ACT) monitoring at Frimley Park Hospital and earlier studies, an ACT guided heparin administration guideline was introduced in 2016. The purpose of this audit was to review the level of compliance and the effectiveness of guidelines.

Frimley 2016 Guidelines

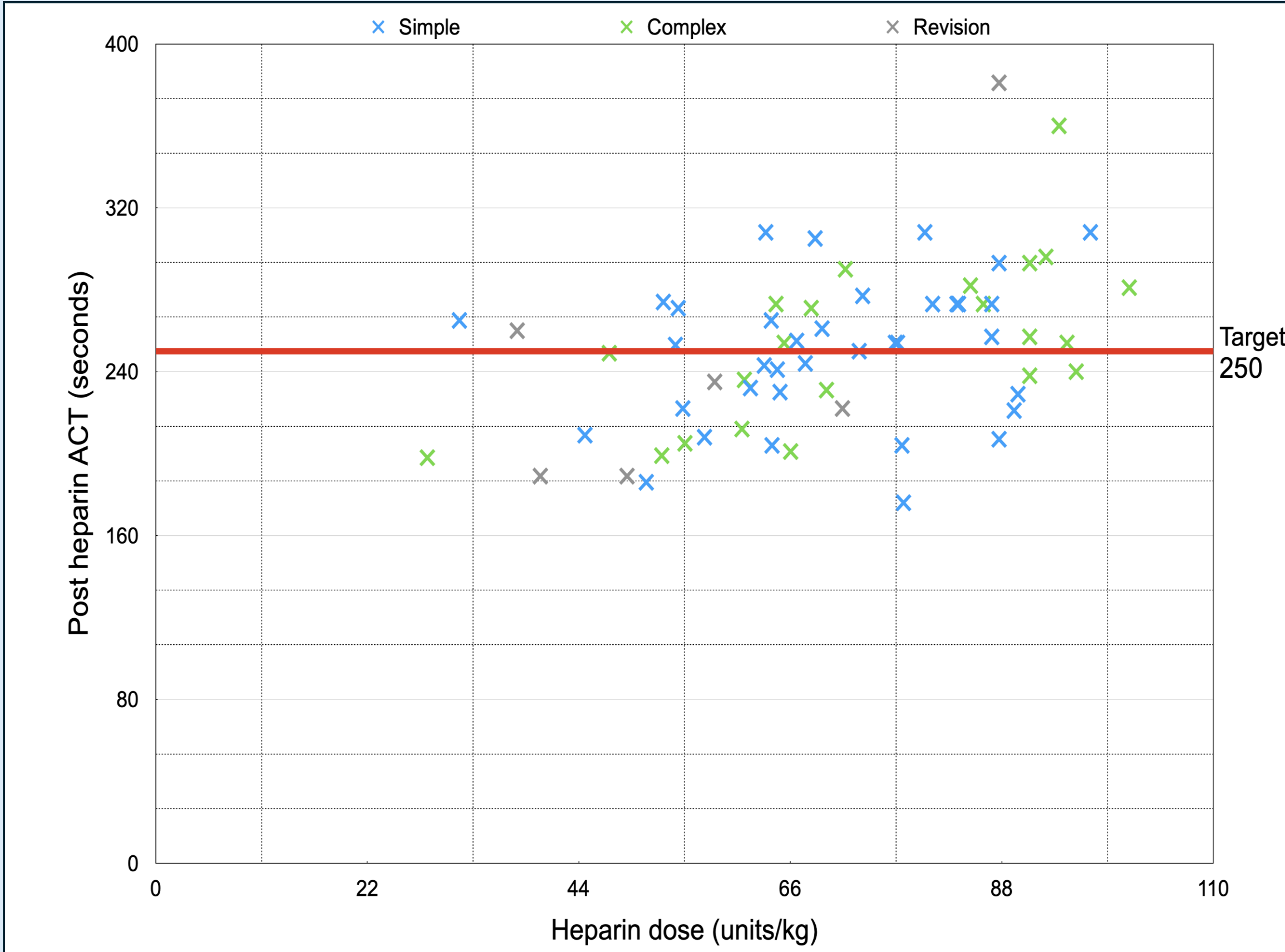
- 1
- Baseline ACT
- 2
- Heparin 100 units/kg at arterial puncture and guidewire insertion
- 3
- Target ACT >250 seconds

Methods

National Vascular Registry used to identify endovascular AAA procedures between June 2022 and November 2023. Initially 85 endovascular AAA cases. Patients were excluded if the procedure was converted to open surgery, the patient did not survive the procedure, or the patient data was incomplete

A total of 64 cases were included; infrarenal (n= 36), complex (n= 22) and revision (n= 6). Patient weight, heparin dose and baseline and post-dose ACT data was collected from EPIC (EPR).

Results



Key Findings

- 54.7 % cases achieved ACT target of 250 seconds
- Average dose to achieve target ACT 75 units/kg
- 55% given 5000 units regardless of weight

Conclusion

This study demonstrated very poor compliance with the 2016 guideline for heparin administration and is unable to confirm whether a dose of 100IU/kg leads to patients achieving target ACT after a single heparin dose. This may be due to a reluctance to use larger heparin doses than historically or that anaesthetists and surgeons are unaware of the existence of the 2016 guideline. Given the data demonstrates poor linear correlation between heparin dosing and ACT, whatever dose of heparin chosen, regular monitoring of ACT following administration is essential to ensure adequate anticoagulation perioperatively.

Recommendations

Recommendations to changing the initial heparin dose to a minimum of 75IU/kg may help to improve compliance with a guideline and lead to greater achievement of target ACTs. Updated guidelines will stress the need to proactively monitor ACT regularly throughout these procedures and further studies will assess compliance and relevance of the recommendations.



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