Evaluation of time to therapeutic PTT and overall outcomes of patients presenting with pulmonary emboli and treated with heparin infusion with or without heparin bolus.

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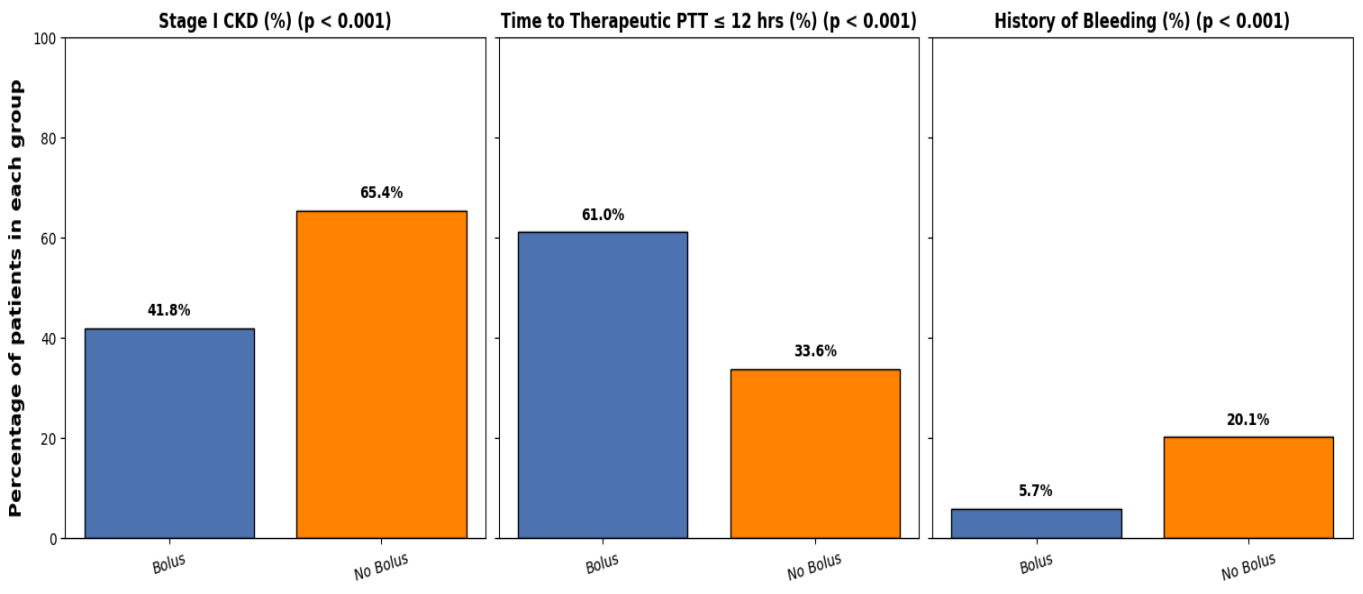
Introduction

- Heparin infusions (HI) are commonly used to treat pulmonary embolisms (PE) in hospitalized patients
- Time to therapeutic PTT is a critical measure of efficacy in anticoagulation for PE
- Previous studies have shown that a shorter time to therapeutic PTT reduces bleeding events (Kuhrau)
- Our institution had a number of patients with the bolus withheld when initiating the HI
- Goal of this study was to determine if patients with the bolus withheld had any significant effects on outcome compared to those who received the bolus
- Secondary comparisons were done to identify if there was a clear driver for withholding the bolus

Methods

- IRB approved retrospective study of adults who were treated with HI for their PE (n=433)
- Divided into no bolus group (n=134) and bolus group (n=299)
- The groups were comparable in regards to age, p=0.96, gender, p=0.22, BMI, p=0.16, and race, p = 0.38
- Compared on categorical parameters using chi-square analysis
- Frequencies and percentages were reported to give context to the findings
- Statistical significance was assumed at an alpha value of 0.05



Results

Variable	Bolus (n=299)	No Bolus (n=134)	p-value
Stage I CKD	125	88	<0.001
Time to Therapeutic PTT ≤ 12 hrs	182	45	<0.001
History of Bleeding	17	27	<0.001

Discussion

- Our primary goal was if withholding the bolus when initiating HI had any effects on overall patient mortality. There was no significance noted between groups (p=0.22).
- Several of our secondary goals, assessing time to therapeutic PTT between groups, CKD, and history of bleeding did meet significance (p < 0.001)

Conclusion

- We do not know why this delay in treatment did not affect mortality; however, preliminary data indicated a higher-powered study may have met significance.
- Those that did receive a bolus, even with a bleeding risk, did not have any statistically significant worse outcomes. This suggests the bolus is safe in patients even with a risk of bleeding.
- Despite our findings, we encourage the use of bolus with HI to reach therapeutic PTT as this aligns with current European guidelines
- Our institution utilizes HI for PE treatment in preparation of potential procedures however the current recommendations are to use enoxaparin to avoid issues with PTT