Heparin-induced thrombocytopenia (HIT) type II is a clinically significant immune-mediated complication of heparin therapy. Appropriate treatment of HIT type II is critical, yet it is over-diagnosed due to testing in the setting of low pre-test probability.

**INTRODUCTION**

Heparin-PF4 Antibody and Argatroban: Interdisciplinary Teamwork to Improve Quality

Brandy Gunsoles, DCLS, MLS(ASCP)SM,1 Jamelia Singleton, MSHI, MT(AMT),1 Ellen Huang, PharmD, BCCC,1 Natasha Savage, MD, FACP1,2 AU Medical Center1, Medical College of Georgia2, Augusta, Georgia

**GOALS**

Pathology Goal -
• Reduce the TAT of HIT Ab testing by at least 50%

Pharmacy Goal -
• Reduce the argatroban expense by at least 25%

**REFERENCES**


**RESULTS**

PDCA Cycle 1 –
Pathology fully automated HIT Ab testing on the Core Laboratory’s automation line to provide reduced test TAT. Pharmacy initiated auto-cancellation of all heparin orders and held the first argatroban dose waiting on HIT Ab result. If HIT Ab was negative, heparin would be reordered and no argatroban was given. If HIT Ab was positive, argatroban would be given pending SRA result.

Initial results from PDCA Cycle 1 identified that while the HIT Ab TAT was drastically decreased from 15.27 hours to 4.54 hours from order. However, argatroban use increased by 17%.

PDCA Cycle 2 –
Pathology reviewed 12 months of HIT Ab test orders, 6 months pre-cycle 1 and 6 months post-cycle 1. Using 4T score HIT risk assessment, 63% were considered “low risk” for HIT. Choosing Wisely recommends not testing patients whose 4T score is 0-3 or “low risk”.

Pathology requested IT to program a rule requiring ordering clinicians to calculate the 4T score when ordering a HIT Ab. 4T scores that were >3 (intermediate or high risk) would be allowed and low risk scores would cancel the test. Pathology also reflex ordered SRA referral tests based on positive HIT Ab tests.

PDCA Cycle 3 –
Pathology reviewed 6 months of HIT and SRA orders and identified two additional areas which could be improved upon:
• HIT Ab & SRA sample collection time reduction
• SRA TAT reduction

After working with nursing Clinical Outcomes Managers for critical care areas, Pathology requested a nursing task alert to fire when a HIT Ab or SRA order was placed. Pathology also negotiated a contract with a new reference laboratory for STAT HIT Ab confirmatory testing through a specialized coagulation reference laboratory, Machaon Diagnostics.

Results table depicts the before project measures and the measures after each PDCA cycle. Final reductions after all 3 cycles included a 91.1% reduction in HIT Ab tests performed, a 43.1% reduction in SRA TAT, a 71.2% reduction in argatroban expense, and an 81.3% reduction in HIT Ab TAT.

**CONCLUSIONS**

This project is a clear example of continuing to check quality improvements to ensure the improvement made is still working.

The Pathology goal of reducing the HIT Ab TAT by at least 50% was achieved and surpassed with an 81.3% overall reduction.

The Pharmacy goal of reducing argatroban expense by at least 25% was achieved and surpassed with a 71.2% reduction. This was remarkable considering the price of argatroban increased by 15% over the time of the 3 PDCA cycles.

Interdisciplinary projects such as this highlight how we can work together to improve finances, reduce inefficiencies, and reduce waste.

**CLINICAL IMPLICATIONS**

There are several clinical implications of this research:
• Ensuring that a 4T score is calculated and appropriate prior to performing a HIT Ab reduces unnecessary testing.
• Automatically discontinuing all heparin products, including heparin flushes, prevents the progression of HIT while under investigation.
• Rapid TAT of HIT Ab can prevent unnecessary use of argatroban, should the screening be negative.
• Reduction in TAT of SRA can reduce argatroban use and overall drug costs.