Utility and Pitfalls of Stepwise Laboratory Testing for Heparin Induced Thrombocytopenia (HIT): Retrospective Review from an Academic Medical Center

Joshua Kra, MD[1]; Helen Horng, PharmD[2]

1 Rutgers Cancer Institute of New Jersey, Division of Hematology/Oncology at New Jersey Medical School

2 Division of Pharmacy, University Hospital of Newark

Introduction: HIT occurs due to formation of heparin-dependent antibodies with mortality rates up to 20%, but much lower with treatment. Quick decision making is critical in such challenging cases. Workup involves a combination of clinical suspicion, testing for the heparin-dependent antibody, and a functional assay to confirm pathogenicity. Our institution uses a screening rapid PIFA test, followed by ELISA and Serotonin Release Assay (SRA). Our goal was to analyze using an algorithmic approach in making the diagnosis without missing critical cases.

Methods: We reviewed relevant charts from 2015-2018. First-line testing is recommended by using PIFA, and if positive, reflexing to ELISA and SRA testing. Furthermore, ELISA and SRA testing can be ordered directly. Our analysis looked at patients with at least two different laboratory tests to analyze concordance and discordance rates and assess for sensitivity, specificity, and overall accuracy of a stepwise testing approach.

Results: 118 patients met the criteria. 91 patients had both PIFA and ELISA testing, with 37/79 (47%) positive concordance rate and 6/12 (50%) negative concordance rate (sensitivity 86% and specificity 13%). 3 patients with positive PIFA also had positive SRA, but 2 patients with negative PIFA had positive SRA. Comparing ELISA to SRA, no negative ELISA test had a positive SRA. Overall, of 94 SRA tests, 5 were positive, of which 2/5 had negative PIFA and 0/4 had negative ELISA testing.

Conclusions: Overall accuracy of PIFA was low, while ELISA testing was 100% sensitive. Furthermore, PIFA can miss HIT cases. In both cases of “positive-SRA/negative-PIFA,” patients had a high 4T score, consistent with a high clinical suspicion for HIT. We conclude PIFA testing is not equivalent to ELISA testing, and a laboratory “algorithm only” approach would be inappropriate in the diagnosis of HIT. This highlights the importance of clinical assessment together with lab testing in HIT.