

HIPA TEST: IMPROVED SENSITIVITY AND SPECIFICITY (2000) ISBT Abstract Nr. P054

Pachmann U, Bayreuth Germany

HIPA is the only test measuring directly Heparin induced platelet aggregation which is the crucial characteristic of Heparin induced Thrombosis, the HIT II-syndrome. All other usual tests report on which of the 5 suspected different pathomechanisms of the HIT II syndrome might prevail. Moreover, a completely unknown number of the potentially developing HIT II syndromes never develop to the complete outbreak of life threatening thromboses and embolisms. Therefore it is impossible to define the absolute sensitivity and specificity of the different methods in use as early indicators for the HIT II syndrome. However it is easily possible to improve the relative sensitivity and specificity of the HIPA assay, by the following six technical measures:

1. Incubate while stirring rather for 60 than for 45 minutes. This will increase the number of positive results by around 6 %, and thus the sensitivity.
2. Evaluate the test under the microscope. This results in a 15 % higher fraction of positive results increasing at the same time the sensitivity, because also weak aggregations can be detected as positives.
3. Only under the microscope is it possible to discriminate between negative results and weak platelet aggregations which have been disrupted by the steel spheres. This discrimination may improve sensitivity as well as specificity by some 4 %.
4. Specificity will be improved by 5 % if the condensates developing under stirring from lipemic sera are discriminated from truly positive results.
5. Still, specificity can be improved about 12 % if Heparin independent platelet activation (often associated with DIC or septic crises) is unequivocally discriminated under the microscope, from Heparin dependent platelet activation.
6. Heparin present in the serum will simulate a positive result also in the Danaparoid HIPA assay even if there is no cross reaction of the HIT antibodies with this alternative drug. Taking into account this possibility will decrease false positive interpretations by almost 1 percent.

The combination of these measures will improve the relative sensitivity of the HIPA test by a factor of 26,8 %, and the relative specificity by around 23,5 %. Far more urgent in practice than elucidating the detailed pathomechanism of the HIT II syndrome may be the prompt and competent laboratory workup of other differential diagnoses of thrombocytopenia coinciding with Heparin medication.