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SUPPLEMENTAL TECHNICAL BULLETIN
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Title: Platelet Aggregation Interpretation and Analysis

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Platelet Aggregation Interpretation and Analysis

There are several proposed algorithms intended to standardize platelet aggregation test procedures, results, and interpretation .[1,2,3,4] Variables affecting platelet aggregation are widely reported, dating back to Born's original work.[5] The Clinical Laboratory Standards Institute recently formed a subcommittee whose task it is to develop a Guideline for platelet aggregation testing and results. The ISTH SCC Subcommittee on Platelet Physiology has focused on this issue at its 2006 meeting. Standard dictation formats for reporting aggregation results are posted online.

The primary method currently used to analyze and interpret aggregation results is pattern recognition (visual comparison). The comparison is between the patterns from the patient sample and the known donor sample.

Minor numeric differences in curve parameters are not clinically significant. For example, total aggregation for Collagen at 83% or 90%, are essentially the same: Normal. As long as the difference is within the method precision, the numerical difference is unimportant.

Triplett and Shapiro have published compendia of aggregation patterns in healthy and abnormal samples[6,7] that many laboratories use as interpretive guides.

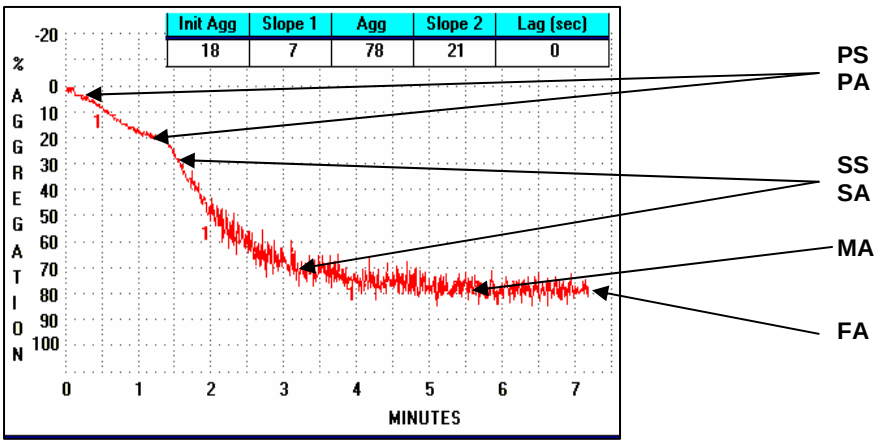
The following is an example of one of the basic dictation formats for interpretive reporting.
Platelet Aggregation, ADP: Normal Pattern induced by concentration mM ADP at 5 minutes.

Platelet Aggregation is platelet function testing and is not just focused on reporting the numeric amount of aggregation or speed of aggregation, but looks at the behavior of the platelets in the aggregation reaction. Other parameters that are described in platelet function testing include:

- How fast do the platelets react to the agonist (Lag Phase)
- Is the aggregation reversible (Primary Aggregation) and/or Irreversible (Secondary Aggregation) due to release of endogenous ADP
- The rate (Slope) of aggregation for either Primary Aggregation or Secondary Aggregation

- Does the initial start of aggregation provide Shape Change information?
- What is the size of the aggregates that are formed for either the PA or SA

Epinephrine– Typical response from NORMAL Donor (1 X 10^{-4} M Final Concentration)



Do the aggregation patterns "match" at exact and specified points within the reaction curve? Is the pattern of the "test" similar to the "Normal" at 30 Seconds; 1 minute; 5 minutes and 10 minutes? If not, then the "Test" maybe showing an "A-Normal" response.

Is there Dis-aggregation? When does it occur? How does this compare to the "Normal".

Simple, aggregation may sometimes be reduced to a numerical comparison for screening but if that is not adequate to the task, than a true analysis must be performed to provide the most accurate results. Diagnostic and special tests require comparison of data or by using the data analysis feature for the most accurate interpretation.

References:

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