Platelet Granule Storage and Release Testing Will Now Be Offered by the Vitalant Coagulation Laboratory

New Service Announcement

On March 4th, 2024, the **Vitalant Coagulation Laboratory** will start offering a flow cytometry test for detection of adenine nucleotide storage in platelets and granule release upon platelet stimulation.

Defects in adenine nucleotide storage in delta (dense) granules and impaired release of alpha and dense granule contents lead to impaired platelet aggregation and bleeding diathesis.

It is estimated that a high percentage of unexplained bleeding is due to a platelet granule storage pool defect[1]. It has also been reported that platelet storage/release defects make up greater than 30% of all inherited platelet disorders but are frequently underdiagnosed[2]. These types of defects have traditionally gone undetected due to limited test sensitivity for delta granule storage/release defects and lack of testing widely available in clinical laboratories to detect alpha granule issues[3].

This test should be ordered when:

- Inherited platelet storage or secretion disorder is suspected.
- Platelet aggregation studies are repeatedly abnormal with collagen, ADP, or arachidonic acid agonists.
- An individual has an unexplained bleeding diathesis.
- Adenine nucleotide testing has been abnormal.
- Other bleeding disorders have been ruled out.

It is recommended that this test is ordered remote from use of medications that interfere with platelet function, including aspirin and SSRIs.

The advantages of ordering this test include:

- A 24-hour turn around time versus the several day/week turn around time for adenine nucleotide testing and electron microscopy.
- Increased sensitivity for platelet storage pool issues compared to current methodologies[3].
- The ability to exclude delta granule storage pool deficiency with normal results[4].
- Assessment of both platelet granule storage and release in one test.
- The ability to detect both inherited and acquired conditions.

Specimen Requirements: Four tubes of whole blood drawn in 3.2% sodium citrate (blue top) tubes.

Samples need to be transported at room temperature and received **within** four hours of collection M-F. Samples **must be** received by 1:00 pm to be tested.

Test code: 6417

References:

1. Israels et al. Platelet storage pool deficiency: diagnosis in patients with prolonged bleeding times and normal platelet aggregation. Br J Haematol. 1990. PMID: 2375909.
2. Orsisni et al. Bleeding risk of surgery and its prevention in patients with inherited platelet disorders. Haematologica. 2017. PMID: 28385783.
3. Gunning WT et al. Platelet Aggregation Assays Do Not Reliably Diagnose Delta Granule Storage Pool Deficiency. J Hematol. 2021. PMID: 34527116.
4. van Asten et al. Flow cytometric mepacrine fluorescence can be used for the exclusion of platelet dense granule deficiency. J Thromb Haemost. 2020. PMID: 31815339.

Inquiries concerning results or testing can be made by calling 412-209-7270 or by contacting us on our website (https://www.vitalanthealth.org/contact-us)

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