

Viscoelastic Testing (vet): Point of Care Tests in Patient Blood Management

“Patient Blood Management (PBM) is a patient-centered, systematic, evidence-based approach to improve patient outcomes by managing and preserving the patient's own blood, while promoting patient safety and empowerment.”

Comprises of 3 pillars as shown below:

Pillar 1:
Detection and
management
of anaemia
and iron
deficiency

Pillar 2:
Minimization of
blood loss and
optimization of
coagulation

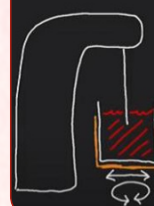
Pillar 3:
Leveraging and
optimizing the
patient specific
physiological
tolerance of
anemia

- ▶ 3 PILLARS IN PBM, VET address 2ND pillar, i.e. minimizing blood loss.
- ▶ By adopting point of care testing, it helps in better management of patient's hemostatic status thereby playing a pivotal role in Patient Blood Management.
- ▶ It helps in bleeding management in operating room and emergency department.
- ▶ POC guided bleeding management in ICU for better patient outcomes.

What is VET?

Real time measurement of the viscous and elastic properties of CLOT as it forms.

Thromboelastography How it Works



Pin movement is
proportional to clot
strength!
Clot grows → Pin moves more
Clot breakdown → Pin moves less

Life Blood Centre
Committed to Care

A Centre for Excellence in Transfusion Medicine
Since - 1981



Project 'Life'

A Temple of Humanitarian Services
Since - 1978



Viscoelastic tests	Conventional laboratory coagulation assays
<ul style="list-style-type: none"> ▶ Whole blood sample ▶ Can be viewed and evaluated at the point-of-care ▶ Results within minutes ▶ Holistic overview of ex-vivo clotting 	<ul style="list-style-type: none"> ▶ Platelet poor plasma sample ▶ Tests takes place in central laboratory ▶ Longer turn around time ▶ Snapshot of individual steps in clotting process

Factors assessed by VET:

CLOT FORMATION → CLOT KINETICS → CLOT STRENGTH → CLOT RESOLUTION

VARIOUS PLATFORMS AVAILABLE TO TEST THE SAME:

1. Thromboelastography- TEG : a manual method to look for the CLOT MECHANICS
2. ROTEM : an automated method to look for CLOT MECHANICS
3. SONOCLOT : also assess PLATELET FUNCTION of patient along with CLOT MECHANICS
4. QUANTRA : Not Yet Launched in India.

Summary:

The ability of viscoelastic hemostatic assays to deliver clear and readily actionable information about a patient's overall hemostatic status will continue to improve patient care in the years ahead; however, newer technologies and devices will have to demonstrate their clinical effectiveness.

Viscoelastic testing: Clinical areas with active research



Cardiothoracic and vascular surgery

- Presurgical platelet function tests
- Peri-operative hemostasis testing Intensive care unit management



Gynecologic and obstetric care

- Management of postpartum hemorrhage
- Identifying hypercoagulability as a potential cause for miscarriage



Interventional cardiology

- Assessing patients prior to surgery
- Personalized dual anti-platelet therapy
- Periprocedural monitoring in interventional cardiology



Liver disease and transplant

- Patients with cirrhosis undergoing invasive procedures
- Patients with cirrhosis experiencing active bleeding
- Liver transplant surgery



Trauma and emergency

- Trauma-induced coagulopathy
- Traumatic brain injury and associated coagulopathy



Critical care

- Management of clinical conditions associated with coagulopathy and thrombotic complications e.g., hemorrhage, mechanical support, sepsis and COVID-19

NAT & X-Ray Irradiated Blood Units Available at Life Blood Centre

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Committed to Care

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