

D-dimer - Specific Uses of a Non-specific Marker

by Dr. Adele Visser

Introduction

D-dimer is a by-product which forms from fibrin during coagulation. In the clinical setting, it is broadly used in the exclusion of venous thrombosis.

However, more recently, its use has been extended to a range of conditions, where it is of prognostic value (cardiovascular disease and malignancy) and even more recently, in the use of COVID-19 disease¹.

Clinical uses of D-dimer

As per the American Society of Hematology (ASH) guidelines, the D-dimer assay should be used within the correct clinical setting to allow for appropriate interpretation of quantitation.

Pulmonary embolism²

Patients should be stratified according to their risk probability for a pulmonary embolism.

In patients within the low probability subsection, a D-dimer can be used as a rule-out test. If equivocal or elevated, a VQ or CTPA should be performed.

Patients with a high pre-test probability requires CTPA or VQ scans. There is no indication to perform a d-dimer following either of these visualization studies.

Lower extremity Deep Vein Thrombosis (DVT)

Patients should be stratified according to their risk probability for a deep vein thrombosis. In patients within the low probability subsection, a D-dimer can be used as a rule-out test. If equivocal or elevated, a lower extremity ultrasound or whole-leg ultrasound should be performed.

Patients with an intermediate pre-test probability (25%), requires serial proximal leg ultrasound, whereas patients with a high pre-test probability (>50%) requires whole-leg ultrasound - serial testing indicated if uncertainty remains.

Upper extremity DVT

Patients should be stratified according to their risk probability for an upper extremity DVT. In patients within the low probability subsection, a D-dimer can be used as a rule-out test, followed by a duplex ultrasound as confirmation. Patients with a high pre-test probability requires serial duplex ultrasound. D-dimer should never be used in isolation in the diagnosis of an upper extremity DVT.

COVID-19 disease³

D-dimer can be reliably utilized as a prognostic marker in COVID-19 disease with values exceeding 2,14mg/L having a higher association with mortality in this setting.

Disseminated Intravascular Coagulation (DIC)⁴

In addition to the platelet count, aPTT and fibrinogen, the D-dimer is used in a scoring system for the diagnosis of DIC. Values are scored in reference to multiples of the upper limit of normal.



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References

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JDJ Pathology Laboratories

Suite LG 2, Musgrave Park,
18 Musgrave Road
Durban, 4001

☎ 031 201 4647
📞 067 826 7473
📠 031 201 4910

✉ clientservices@jdjd.co.za
✉ accounts@jdjd.co.za
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