

Diagnostica di laboratorio in emostasi e trombosi

D-DIMER TESTING BEYOND THROMBOSIS: A LABORATORY AUDIT OF TEST UTILIZATION, APPROPRIATENESS AND INTERPRETIVE CHALLENGES

A. Mameli[1], E. Casula[2], E. Poma[2], F. Marongiu[1], D. Barcellona[1]

[1]Haemostasis and Thrombosis Unit; [2]Laboratory Clinical Chemical Analysis and Microbiology, Azienda Ospedaliero-Universitaria (A.O.U.), Cagliari, Italy

Background. D-dimer is a high-sensitivity biomarker central to diagnostic algorithms for venous thromboembolism (VTE). However, its low specificity—particularly in elderly and hospitalized patients—limits clinical utility when not integrated with pre-test probability assessment. Inappropriate test utilization may generate diagnostic ambiguity and unnecessary downstream imaging.

Objectives. To evaluate real-world patterns of D-dimer utilization and identify predictors of guideline-adherent testing, focusing on implications for diagnostic stewardship.

Methods. We conducted a retrospective observational study including all consecutive D-dimer requests over a 12-month period at a tertiary care hospital. Appropriateness was defined according to established indications (suspected VTE, acute aortic syndrome, disseminated intravascular coagulation). Demographic, laboratory, and clinical discharge data were collected. Multivariable logistic regression was performed to identify independent predictors of appropriate test use.

Results. A total of 519 D-dimer requests were analyzed. Only a minority met predefined appropriateness criteria, indicating substantial overuse in routine practice. D-dimer levels were elevated in the majority of cases, while values below the conventional 0.5 mg/L FEU cut-off were uncommon. At multivariable analysis, increasing age was independently associated with a lower likelihood of appropriate test utilization (OR 0.98 per year; 95% CI 0.97–0.996; p=0.011), whereas sex was not significantly associated with appropriateness.

Conclusions. In real-world hospital settings, D-dimer testing is frequently performed outside structured diagnostic pathways. Given its high sensitivity but limited specificity—-particularly in elderly populations—its indiscriminate use may reduce diagnostic efficiency. Strengthening laboratory–-clinician integration and implementing diagnostic stewardship strategies, including age-adjusted thresholds and contextualized reporting, may improve appropriateness and reduce unnecessary downstream investigations.