A clinical score for predicting risk of venous thromboembolism

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A new clinical prediction model can help identify high risk of venous thromboembolism (VTE) among patients with a leg cast, according to a study published this week in *PLOS Medicine*. The study was conducted by Banne Nemeth of Leiden University Medical Center in the Netherlands, and colleagues and utilized data from three large cohorts to develop and validate two prediction models and a risk score, the L-TRiP(cast) score, to help doctors deciding whether to prescribe anticoagulants for thromboprophylaxis.

Nemeth and colleagues used data from the MEGA study, a population-based case-control study in the Netherlands that included 4,446 patients with VTE and 6,118 controls without, to identify biomarkers, genetic factors, and environmental factors predictive of VTE and build a full prediction model (including 32 predictors for prediction of VTE in all patients), a restricted model (including only 11 predictors selected to specifically predict VTE in plaster cast patients), and a clinical model (also targeted to plaster cast patients but including only environmental predictors that can all be determined without drawing blood or performing any laboratory assays, 14 in all). The predictors in the clinical model were given numerical values which, when summed, produce the L-TRiP(cast) score to easily stratify patients into high or low risk for VTE. Using a cutoff of 9 points, the risk score correctly identified 80.8% of patients who developed VTE and 60.8% of patients who did not develop VTE.

The prediction models and risk score were validated in two independent

cohorts, the THE-VTE study (784 VTE cases and 523 controls from the Netherlands and United Kingdom), and the Milan study (2,117 cases and 2,088 controls from Italy). There were some limitations to this study; no information was available about which patients may have received thromboprophylaxis, and blood samples were taken three months after VTE. Nevertheless, the authors believe these models and the L-TRiP(cast) score can help doctors decide when to prescribe thromboprophylaxis: "These results can give guidance in clinical decision-making until an unambiguous guideline for thromboprophylaxis therapy in these patients is available, so that not every patient needs to be exposed to the risk and burden of anticoagulant treatment."

More information: Nemeth B, Adrichem RAv, Hylckama Vlieg Av, Bucciarelli P, Martinelli I, Baglin T, et al. (2015) Venous Thrombosis Risk after Cast Immobilization of the Lower Extremity: Derivation and Validation of a Clinical Prediction Score, L-TRiP(cast), in Three Population-Based Case-Control Studies. *PLoS Med* 12(11): e1001899. DOI: 10.1371/journal.pmed.1001899

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