EDITORIAL

QThrombosis: a tool to assess venous thromboembolism risk

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VENOUS THROMBOEMBOLISM IS A COMMON CONDITION THAT CAN CAUSE SIGNIFICANT morbidity and mortality. It is preventable with the appropriate use of interventions in high-risk patients. Such individuals could be identified by a new Q algorithm, QThrombosis (www.qthrombosis.org), according to a study in the *BMJ*.

To derive and validate this new risk score the authors undertook a prospective open cohort study using routinely collected data from 564 general practices in England and Wales contributing to the QResearch database. Patients aged 25-84 years were included providing there was no record of pregnancy in the preceding 12 months, no previous venous thromboembolism and no prescription of an oral anticoagulant at baseline.

Two cohorts were formed with 2,314,701 in the risk score derivation cohort and 1,240,602 in the validation cohort. A Cox proportional hazard model was used in the derivation cohort to derive risk equations evaluated at one and five years.

The primary outcome measure was incident cases of venous thromboembolism, either deep vein thrombosis or pulmonary embolism, recorded in primary care records or linked cause of death records.

There were 14,756 incident cases of venous thromboembolism from 10,095,199 person-years of observation in the derivation cohort (14.6 per 10,000 person-years). The validation cohort included 6,913 incident cases from 4,632,694 person-years of observation (14.9 per 10,000 person-years). The authors included the following independent predictors in the final model for men and women: age, BMI, smoking status, varicose veins, congestive cardiac failure, chronic renal disease, cancer, COPD, inflammatory bowel disease, hospital admission in past six months, and current prescriptions for antipsychotic drugs. They also included use of oral contraceptives, tamoxifen, and HRT in the final model for women.

The authors state that they have developed and validated a new risk prediction model that quantifies the absolute risk of thrombosis at one and five years. This, they say, can identify patients at high risk for preventative intervention. The algorithm is based on clinical variables that should be easy to identify in general practice and as with previous Q algorithms this score could be integrated into GP computer systems. The algorithm is not designed to assess the current risk of venous thromboembolism such as that in a symptomatic patient presenting with a swollen leg.

The authors propose several areas in which their risk score could be used. They first suggest that it would allow for risk assessment of patients before hospital admission or long haul flights. Second, it could be used prior to starting medication which could increase the risk of venous thromboembolism such as the oral contraceptive pill, tamoxifen, HRT, or antipsychotic drugs. Third, it could be used to identify high-risk patients suitable for further testing, closer monitoring, or preventative treatment.

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It is not clear how useful this score would be in general practice. It could be argued that since current hospital practice is to assess risk of venous thromboembolism in all patients that there is no need to perform this task in an already overburdened primary care environment. Also, the QThrombosis algorithm does not consider the risk of bleeding nor the specific procedure that will be performed and its attendant thrombotic and bleeding risk. In addition, the thromboembolic risk of long-distance travel is low (absolute risk for life-threatening pulmonary embolism <1 per million flights) and the evidence for use of thromboprophylaxis in this situation is limited.

It is also unclear how to determine at what level of risk preventative treatment should be initiated with due consideration to the pros and cons of intervention.

Putting the above considerations to one side, I think the score could potentially be used in patient education to illustrate the benefit of lifestyle modification and promote adherence to thromboprophylaxis and early mobilisation. It may be in this area that the score finds most use in primary care.

REFERENCES
1 Hippisley-Cox J and Coupland C. Development and validation of risk prediction algorithm (QThrombosis) to estimate future risk of venous thromboembolism: prospective cohort study. *BMJ* 2011;343:d4656