Screening tool does not select for bleeding disorders in women with menorrhagia

Meijer, Karina; Knol, H. Marieke; Veeger, Nicolaas

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TO THE EDITORS: Dr Philipp and her colleagues propose an elegant screening tool to select women with menorrhagia for hemostatic testing.[1] They must be commended for their work on the improvement of care for these women.

However, we have 2 major concerns with the current study.

The first is that the population does not leave much room for efficient and effective screening: with a pretest probability of any coagulation disorder of 71%, the use of simply testing everyone is already very high. Also, the unusually high prevalence of coagulation disorders could limit the generalizability of findings from this population.

The second is their interpretation of the screening tool as useful. Given the prevalence (pretest probability) of 71% coagulation defects in these women, a positive predictive value of 72% with a positive screening test does not add additional information. The tool seems to have simply selected a random sample of their population, with the same prevalence as in the total population. By adding high PBAC score or low serum ferritin, the size of the sample increases but it is still random, as illustrated by no change in the positive predictive value. To illustrate, if we would increase the sample to all women, sensitivity would further increase to 100%, with the constant predictive value of 71%. Another way to illustrate this is to calculate the positive likelihood ratio (LR), the factor that converts pretest probability to posttest probability if a test is positive. The major advantage of a LR is that it is independent of the disease prevalence in a given population, in contrast with the positive predictive value. A test that adds no information has a LR of 1. Tests with LR values between 0.5 and 2.0 are generally considered not useful.[2] The screening tool in the Phillip study has a positive likelihood ratio of 1.06.

To test whether the tool might perform better in a population with a lower prevalence of coagulation defects, we applied it to a population at our clinic (unpublished data). In this group, platelet aggregation or coagulation defects were diagnosed in 29% of women. In this study, sensitivity was 67%, specificity 24%, positive predictive value was 27%, and positive LR was 0.87.

In conclusion, we cannot agree with Dr Philipp that, in its current form, the proposed screening tool is useful in clinical practice. ■

Karina Meijer, MD, PhD
Division of Haemostasis and Thrombosis
Department of Haematology
University Medical Centre Groningen
Hanzeplein 1
9713 GZ Groningen, The Netherlands
k.meijer@umcg.nl

H. Marieke Knol, MD
Nic J.G.M. Veeger, PhD
Division of Haemostasis and Thrombosis
Department of Haematology and the
Department of Obstetrics and Gynaecology
University Medical Centre Groningen
Groningen, The Netherlands

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REPLY

We appreciate the letter to the editor by Drs Meijer, Knol, and Veeger regarding our article.[1] Because 5% of reproductive age females present to physicians with complaints of menorrhagia, universal laboratory testing is not feasible. The multiple laboratory tests necessary for the diagnosis of von Willebrand disease, platelet dysfunction, and coagulation defects, prevalent in women with menorrhagia, are complex, expensive, not readily available, and are not generally undertaken by gynecology practices where most women with menorrhagia seek medical attention. The average delay in diagnosis of bleeding disorders from symptom onset has been estimated to be 16 years.[2] Therefore, a simple easy to administer, no cost screening tool that would capture large numbers of women with bleeding disorders and yet reduce the menorrhagia population needing diagnostic laboratory testing would optimize the referral of women and result in earlier diagnosis.

The screening tool was developed and its high sensitivity was confirmed in a US multiracial population of women presenting with unexplained menorrhagia.[1] Although the operating characteristics of the tool (ie, sensitivity and specificity) should be inherent to the tool itself, we agree that the performance of the tool (ie, predictive value) may vary with the population it is evaluated in. Details of the authors' low-risk Dutch population compared with our US multiracial menorrhagia population would be of interest. Most importantly the screening tool was not designed to be used in isolation or to be diagnostic for bleeding disorders, but rather to be used to identify women for referral to the hematologist for subsequent diagnostic hemostatic testing in conjunction with an extensive personal and family bleeding history.

Few screening approaches have both high sensitivity and specificity and there is generally a trade-off between sensitivity and specificity.[3] For this screening tool, we chose high sensitiv-