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New scorecard identifies patients at highest risk on blood thinners

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A new and simple risk score may aid physicians in gauging the likelihood that a common drug will cause a hemorrhagic stroke or other major bleeding in patients with atrial fibrillation, potentially allowing wider but safer use of the effective drug.

A study led by UCSF hospitalist Margaret Fang, MD, MPH, describes its evaluation of the new measure in a study published online on July 11 in the Journal of the American College of Cardiology, at content.onlinejacc.org/.

Among the aging U.S. population, two million to three million people already have atrial fibrillation, in which muscle cells of the upper chambers of the heart lose their rhythm, causing the atria to inefficiently pump blood into the major arteries. Blood can pool in the atria and form clots that later break loose and cause strokes.

Warfarin is a powerful blood thinner, developed in the middle of the last century as a drug to help prevent clots in patients with venous or arterial disease. It remains a popular, relatively inexpensive and effective blood thinner for lessening the risk of a stroke in individuals with atrial fibrillation. But the drug increases a patient's risk for a hemorrhagic stroke or other major hemorrhages.

Due to concerns about bleeding risks, physicians do not prescribe the drug to many of the atrial fibrillation patients today who are likely to benefit, according to Fang.

“The majority of patients with atrial fibrillation – at least 70 percent -- would probably benefit from warfarin or other anticoagulation therapies,” she says. “Based on our risk-stratification scoring, about 10 percent of patients who take warfarin are in the high bleeding-risk category. However, the majority of patients fall into the low bleeding-risk group.”

The new measure gauges risk on a point scale from zero to 10. The researchers investigated several risk factors and identified five that were most useful in constructing a new way to calculate overall risk for a hemorrhagic stroke – anemia, severe kidney disease, being 75 years or older in age, a previous bleeding incident and high blood pressure.

Fang collaborated with scientists from Massachusetts General Hospital, and Alan S. Go, acting director of the Division of Research at Kaiser Permanente of Northern California and principal investor for the Anticoagulation and Risk Factors in Atrial Fibrillation (ATRIA) Study.

ATRIA is a decade-long, multi-center study based in Kaiser Permanente of Northern California looking at the risk factors for complications related to atrial fibrillation and the effectiveness and safety of therapies used to manage this condition.

The researchers tracked 9,186 ethnically diverse Kaiser Permanente patients diagnosed with atrial fibrillation and they analyzed clinical records for warfarin prescription patterns and other factors that might be used to help gauge risk for major bleeding. They observed that 461 patients had major hemorrhages during six years of follow-up.

The researchers compared their new way of combining risk factors to estimate bleeding risk with six other risk schemes developed previously. They found fewer patients at lower risk were miscategorized as high risk, based on events observed in the ATRIA Study population.

High risk patients, with a score from five to 10, had a one-in-20 chance of suffering a major bleeding event in any year following diagnosis. According to the new stratification, this high-risk category accounted for 42 percent of the major bleeding events observed.

This bleeding-risk score can be a useful tool in combination with separate measures that estimate the risk of stroke when people with atrial fibrillation do not take blood thinners, Fang says. Risk factors for stroke include older age, high blood pressure, prior stroke, congestive heart failure and diabetes.

The new way to calculate risk of bleeding due to warfarin treatment developed by Fang and her colleagues is most useful for patients whose risk for stroke is low or moderate, according to Fang. Those patients at greatest risk for a clot breaking loose would most likely be prescribed warfarin regardless of bleeding risk.

However, in patients for whom stroke risk is less, the risk of bleeding due to warfarin treatment becomes more of a consideration. Physicians might become more comfortable prescribing the drug to patients at low risk for bleeding according to the new criteria her research team has developed and evaluated in this initial study, Fang says.

“The ATRIA bleeding risk tool gives doctors a way to estimate a person’s yearly bleeding risk when taking warfarin, which then can be compared to the risk of stroke without warfarin therapy,” Fang says. “Doctors and patients then can decide together on the most appropriate choice of therapy for that individual’s situation.”

Fang notes that although the risk estimation tool was developed and tested in the Kaiser Permanente patient population, it is important to further validate it in a different population of patients.