Predicting is tough, especially about the future

Quinn and Fang, in this issue of the *Journal* (page 345) discuss efforts to predict bleeding complications associated with anticoagulant therapy in elderly patients. They note, as others have suggested, that we may fear the risk of severe anticoagulant-associated bleeding more than is warranted based on the data. The level of that fear and the risk of bleeding depend on the specific need for anticoagulant therapy in a given patient and on the risk of serious adverse outcomes from thrombosis that the anticoagulation is supposed to prevent. All prediction models are based on an "average" patient with certain characteristics. But of course none of our patients are average.

The studies Quinn and Fang discuss focus on vitamin K antagonist therapy. There is probably not enough practice-based or trial-based evidence yet to evaluate the risks associated with the new generation of anticoagulants.

All prediction models have limitations. The recent discussion on establishing a risk-based strategy to guide institution of lipid-lowering therapy highlights the challenges inherent in trying to base therapeutic decisions on predictive models. But however imperfect, models are still widely used to predict fracture risk in patients being considered for bone antiresorptive therapy and to predict the need for anticoagulation therapy or further diagnostic testing in patients with potential deep vein thrombosis or atrial fibrillation.

The decision to start anticoagulation in an elderly patient is often informed by the possibility of an easily recognized and feared risk factor for bleeding complications—falling. Falls are certainly important and are a major contributor to subdural hematoma and complicated hip fracture. But there are more common causes of severe bleeding complications that are less easily predicted by functional assessment of the patient. Nonetheless, fall risk can be lessened by prescribing exercise programs such as tai chi to improve balance, limiting the use of drugs associated with falls in the elderly, perhaps correcting hyponatremia, and testing for orthostatic hypotension as part of the physical examination. (Mild compression stockings and medication adjustment may reduce orthostasis.) Some of these interventions are easily accomplished, and probably should be done with all of our elderly and frail patients.

As we build more risk calculators into our electronic medical records, we must continue to consider their limitations as well as their specific utility. To paraphrase Yogi Berra, making predictions is tough, especially about the future.

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