The importance of verifying the diagnosis of acute venous thrombosis

The patient suspected of having acute venous thrombosis faces an uncertain fate in our health care system today. In fact, Dr. Jack Hirsh, a prominent expert in the field, has stated that the medical community in this country has created generations of "thrombo-neurotics," referring to those patients told they have the disease although the diagnosis was never verified by some objective test.

For every 100 patients suspected of having venous thrombosis, approximately one half will have something else.[1] Such errors in labeling present serious problems. Conventional therapy requires hospitalization and seven to 10 days of heparin treatment followed by three to six months of oral anticoagulation. The patient is not only liable for the costs of hospitalization, but is exposed to the risks of treatment. In addition to changing his or her lifestyle, the patient is also a high risk for another thrombotic event when a major medical or surgical illness develops. Treatment may range from the prescription of antiembolism stockings to the use of drugs designed to prevent the development of recurrent deep venous thrombosis.

On the other hand, the patient who *has* venous thrombosis, but is not believed to have it based on clinical grounds, is always at risk for the development of serious and occasionally fatal pulmonary embolism. Patients with venous thrombi will be fortunate to escape a major thromboembolic event when untreated.[2] In addition, propagation of thrombi, even without the development of pulmonary embolism, is likely to result in the post-thrombotic syndrome with all of its known complications.[3]

The solution to these problems is simple. All patients suspected of having deep venous thrombosis must have the diagnosis either confirmed or ruled out by a suitable objective test. This requirement has been widely known and disseminated to the medical community for at least the past 15 years. Physicians should not rely on the inaccurate evaluation carried out at the bedside. But many have ignored this message. In February 1984, the National Institutes of Health sponsored a gathering of experts to review the methods currently available to establish the diagnosis of venous thrombosis and consider the lack of their implementation. It was discouraging to learn that the educational efforts and writings on the subject had not made the desired impact.

One might require that every patient suspected of having venous thrombosis should undergo contrast phlebography. This would document the status of the deep venous system, but subject every patient to the discomfort and risks of the procedure. It has been estimated that a chemical phlebitis which will require treatment with heparin will develop in 2% of patients undergoing phlebography. This outcome is especially unpleasant when the patient did not have the disease in the first place. Consequently, alternate approaches have been suggested.

The paper by McCandless et al[4] in this issue of the CLEVELAND CLINIC QUARTERLY describes two alternate methods: Doppler ultrasound and venous outflow plethysmography. These two modalities have undergone extensive clinical testing and are highly effective in documenting the presence of thrombi in the veins from the level of the popliteal vein to the inferior vena cava.[5] In fact, it is now considered appropriate to either treat or not treat the patient on the basis of the results of these tests without the need to resort to phlebography.

However, as McCandless et al note, a problem remains. Thrombi confined to the soleal sinuses or smaller veins of the calf may be missed by all noninvasive tests currently in use. However, from a clinical standpoint, the patient with isolated calf-vein thrombosis does not appear to be at risk for the development of either serious or fatal pulmonary emboli.[6] About 20% of these thrombi will propagate into the popliteal and superficial femoral vein which increases the risk of an embolic event. The extent to which calf-vein thrombi contribute to the development of the post-thrombotic syndrome remains an issue.

Thus, the following guidelines should be followed for patients suspected of having acute deep venous thrombosis:

1. An unequivocally positive test warrants therapy without the need to perform phlebography.
2. Therapy may be withheld in patients with an unequivocally negative test.
3. If the patient's symptoms and signs are confined to the calf and the noninvasive tests are positive, it is appropriate to obtain a phlebogram due to the high incidence of false positives. It would be a pity to treat the patient with heparin in this situation when something other than deep venous thrombosis was the cause.
4. If the symptoms are located in the calf and the noninvasive tests are negative, it is safe to repeat the testing in two to three days while withholding therapy. Development of a positive test would thus document propagation of the thrombosis and the need for subsequent therapy.

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