Resumption of Anticoagulation During Hypertensive Cerebral Hemorrhage With Prosthetic Heart Valve

To the Editor:

We would like to bring to your attention our recent dilemma of when to re-anticoagulate a patient with a hypertensive cerebral hemorrhage who concurrently has a prosthetic heart valve.

The patient, a 63-year-old woman, had had her aortic heart valve replaced in 1978 with a modified Bjork-Shiley prosthetic valve and had been taking warfarin without bleeding complications. She was also hypertensive and treated with enalapril. She was admitted to a local community hospital after having been found unconscious and was later noted to have a right hemiparesis with attention, language, and memory abnormalities. Computed tomography (CT) scan showed a left thalamic hemorrhage that had extended into the third ventricle, the internal capsule, and the caudate nucleus. The anticoagulant was stopped after admission, and she was therefore started on heparin i.v. drip at a rate of 800 units/hr without any preceding loading dose. In <24 hours she began to improve and eventually was switched to heparin i.v. drip at a rate of 800 units/hr without any preceding loading dose. In <24 hours she began to improve and eventually was switched to heparin i.v. drip at a rate of 800 units/hr without any preceding loading dose. She was discharged home with a normal neurological examination.

We faced the difficult decision of whether to restart the warfarin and risk the possibility of rebleeding or to wait an indefinite period of time during which the risk of embolization would be great. An extensive literature search directed at guiding our strategy was fruitless. We decided to treat her with platelet antiaggregants for 2 weeks (empirically chosen) and then restart the warfarin. On Day 10, however, she became completely unresponsive to verbal stimuli, inattentive to her surroundings, and showed complete motor deficit. Repeat CT scan failed to show any new areas of bleeding, and she was therefore started on heparin i.v. drip at a rate of 800 units/hr without any preceding loading dose. In <24 hours she began to improve and eventually was switched from heparin to warfarin. No rebleeding occurred and her neurological condition has remained stable.

Literature supporting a rationale for re-anticoagulating patients in this setting is not available. Although the natural history of intracerebral hemorrhage suggests that this is a monophasic event, it is unknown whether the addition of anticoagulant drugs increases the risk of rebleeding. We suggest that reinstitution of anticoagulant therapy after the period off anticoagulants is prolonged, and rebleeding, if warfarin is resumed too early. The incidence of thromboembolism is determined by the valve's position and mechanical characteristics, associated cardiac arrhythmia, and the interval since valve implantation, and varies between 0.36 and 11.1 episodes per 100 patient-years. Data regarding the incidence of rebleeding are, to our knowledge, not available. An assessment of the latter's risk should be based on identifying precipitating causes such as hypertension, vascular malformations, and preceding infarction. Review of our data (Table I) shows that in six of eight instances the admission PT was prolonged to more than twice the upper limit of normal. In six of eight instances the admission PT was prolonged to more than twice the upper limit of normal. The decision to re-anticoagulate was made in each patient after allowing time for PT to return to normal and after the mass effect of the hematoma started to resolve.

We conclude that the timing of re-anticoagulation in this setting should be individualized and based on an assessment of both the specific risk factors related to the valve and potential causes leading to the hemorrhage. An average waiting period of 19 days in our patients proved to be safe.

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Resumption of Anticoagulation After Intracranial Bleeding in Patients With Prosthetic Heart Valves

To the Editor:

Recipients of prosthetic heart valves are anticoagulated because they are at an increased risk for embolism. This risk is reduced by therapy, but in 2% of patients on long-term warfarin, the treatment is complicated by serious, frequently intracranial, hemorrhage. When to resume anticoagulation has not been addressed previously. We describe our recent experience.

We reviewed our records for patients with prosthetic valves who had intracranial bleeding while on anticoagulants. Six were restarted on warfarin and had radiologic studies (computed tomography in six instances and cerebral angiography with radionuclide brain scans in two) to confirm the clinical diagnosis. The findings are summarized in Table 1. Prothrombin time (PT) was determined within a mean interval of 3 days (12 hours to 7 days) from the onset of symptoms in all cases except for Patient 3, who had been symptomatic for 2 months. Warfarin was stopped as soon as the diagnosis was established and was resumed after a mean interval of 19 days. Thromboembolic events were not observed during the period off warfarin, and no clinical deterioration was evident during the 6 months following resumption of treatment. Patient 5 died of complications of bacterial endocarditis, and postmortem examination of his brain showed residual cysts from the frontal hematomas and separate cerebellar and occipital areas of B. gramontii. Hematoxylin and eosin staining and Congo red staining failed to show significant vascular wall abnormalities that could be attributed to warfarin.

The decision to resume anticoagulation in patients with prosthetic heart valves who have had intracranial bleeding hinges on the balance between the relative risks of valve thrombosis or thromboembolism, if the period off anticoagulants is prolonged, and rebleeding, if warfarin is resumed too early. The incidence of thromboembolism is determined by the valve's position and mechanical characteristics, associated cardiac arrhythmia, and the interval since valve implantation, and varies between 0.36 and 11.1 episodes per 100 patient-years. Data regarding the incidence of rebleeding are, to our knowledge, not available. An assessment of the latter's risk should be based on identifying precipitating causes such as hypertension, vascular malformations, and preceding infarction. Review of our data (Table I) shows that in six of eight instances the admission PT was prolonged to more than twice the upper limit of normal. The decision to re-anticoagulate was made in each patient after allowing time for PT to return to normal and after the mass effect of the hematoma started to resolve.

We conclude that the timing of re-anticoagulation in this setting should be individualized and based on an assessment of both the specific risk factors related to the valve and potential causes leading to the hemorrhage. An average waiting period of 19 days in our patients proved to be safe.

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