IS TRANSESOPHAGEAL ECHOGRAPHY USEFUL TO PREDICT THROMBOEMBOLIC COMPLICATIONS IN HYPERTHYROID PATIENTS WITH LONG-STANDING ATRIAL FIBRILLATION?

De Souza MV, Duarte MM, Coeli CM, Vaisman M. **Atrial fibrillation & hyperthyroidism: relation between transesophageal markers of a thrombogenic milieu and clinical risk factors for thromboembolism.** Clin Endocrinol. September 26, 2011 [Epub ahead of print]. doi: 10.1111/j.1365-2265.2011.04232.x.

SUMMARY

BACKGROUND

Atrial fibrillation is a feared complication of hyperthyroidism. It occurs mostly in severe forms of hyperthyroidism and can be a source of thromboembolic events. Patients with atrial fibrillation usually undergo anticoagulation with warfarin or even heparin, regardless of the recommendation that patients younger than 55 years of age should undergo anticoagulation only if they are at particular risk. Transesophageal echography allows visualization of the cardiac atria, including the left arterial appendage, and can reliably recognize the presence of thrombi. It may also provide information about low velocities of blood flow in atrial appendages that favor thrombi formation. A better appreciation of the need for anticoagulation can therefore be given with this technique and the information may be correlated with clinical risk factors for embolism.

METHODS AND RESULTS

The investigators studied 31 patients with severe hyperthyroidism, most of whom had Graves' disease; the ages range from 18 to 65 years. Most of the patients were pretreated with antithyroid drugs. One third were men, a higher percentage than regularly seen in hyperthyroidism. In nearly half of the patients, atrial fibrillation (29 cases with persistent atrial fibrillation) was present for 6 months or more, and 23% of the patients had had fibrillation for only the past month. Hyperthyroidism was diagnosed a median time of 24 months before investigation. It was severe, since median free thyroxine was 68 pmol/L and serum total triiodothyronine was 6.6 nmol/L. A history of hypertension was present in 68% of the patients and 58% had a history of congestive heart failure.

Clinical risk evaluation was based on the CHADS2 (history of congestive heart failure, hypertension, age

>75 years, diabetes mellitus, previous strokes) score (1). Using this stratification, groups of low-, moderate-, and high-risk patients were formed: 23% belonged to the low-risk, 19% to the moderate-risk, and 58% to the high-risk group. Transesophageal echocardiography (TEE) findings were compared with the CHADS2 classification. TEE revealed that 23% of patients had impaired systolic function with the median left atrial diameter slightly increased. Spontaneous echo contrast (signaling turbulence) was visualized in 55% and thrombi in 32% of the patients, suggesting that left atrial function was moderately reduced in 70% of the patients. Using strict criteria for the presence of an increased risk of thromboembolic events (called thrombogenic milieu), 45% of the patients needed warfarin treatment. Interestingly there was no correlation between the presence of a thromboembolic milieu and traditional risk factors such as hypertension and diabetes. The commonly recommended age limit of 55 years for warfarin treatment was not relevant. As expected, thromboembolic milieu was more prevalent with a longer history of atrial fibrillation, while the duration of thyroid disease did not affect the thromboembolic milieu.

CONCLUSIONS

The group of patients was characterized by severe and long-standing hyperthyroidism and atrial fibrillation. Significant thromboembolic risk by TEE was documented in 45% of the patients, who thus needed warfarin therapy. The results of TEE did not correspond to the evaluation by CHADS2 score for atrial fibrillation–related stroke risk. Interestingly, there was no correlation between the presence of thrombogenic features and age, diabetes, hypertension, or heart failure. As expected there was a strong correlation with the duration of atrial fibrillation.

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COMMENTARY • • • • •

This group of patients is unusual for its severe and long-standing hyperthyroidism and high percentage of comorbidities favoring high thromboembolic risk. In the opinion of the authors, TEE allowed restricting warfarin treatment to a subgroup of 45% of the patients. This might be an important finding, particularly in an area in which the clinical follow-up of patients on anticoagulation therapy is not easy. Should we now conclude that TEE is a highly desirable procedure in most or even all patients with hyperthyroidism complicated by atrial fibrillation? For a rational answer, several aspects have to be considered. One is to balance the morbidity of TEE

and its cost—both of which are not negligible—with the inherent risk of warfarin treatment. This certainly depends on the local availability of an excellent medical follow-up. Moreover, should cardioconversion be considered at a later time, TEE will need to be repeated. Finally, even a normal TEE result does not exclude the occurrence of thrombi at any later time. Therefore, I believe, that in real life, most patients with atrial fibrillation—whether they have hyperthyroidism or not—should undergo anticoagulation therapy. Thus, in my personal opinion, TEE for defining those patients to be treated by warfarin is justified in only a few circumstances.

— Albert G. Burger, MD

References

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