Antithrombotic Therapy Post Endovascular Stenting for Superior Vena Cava Syndrome

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Dear Editor,

Superior vena cava syndrome (SVCS) is a diverse clinical condition characterized by the compression or obstruction of the superior vena cava (SVC). The symptomatology of SVCS stems from impaired venous return commonly including upper body edema, dyspnea, or orthopnea with progression to respiratory distress, convulsions, or cerebral edema if left untreated.¹ While the most common etiology is malignancy, endovascular angioplasty with stent placement is considered to be the first-line therapy for all origins of SVCS.² The use of antithrombotic therapy in conjunction with endovascular stents, however, has been highly controversial.

Despite a limited robustness, the pertinent literature reveals a dichotomy of potential antithrombotic therapies. The thrombogenic nature of stent introduction suggests using antiplatelet therapy can reduce platelet activation, aggregation, and stent thrombosis. However, the venous location of stent deployment suggests anticoagulant therapy with a vitamin K antagonist (VKA) may be more favorable.^{2,3} Although limited by their retrospective and descriptive nature, the largest studies to date provide insight into the role of antithrombotic therapies.^{4,5}

In an evaluation of 208 SVCS stenting procedures, Lanciego et al found no association with dipyridamole ($P = .321$) or VKA therapy to mortality ($P = .463$).⁴ However, an association with stent thrombosis and an increase in mortality was found regardless of antithrombotic choice ($P = .018$).⁴ Antiplatelet medications may therefore be beneficial by reducing stent thrombosis, though this was not explicitly described by Lanciego et al.⁴ In a similar fashion, Fagedet et al found no association with the use of aspirin 75 to 325 mg/day ($P = .69$) or VKA ($P = .76$) on reoccurrence of SVCS in a study of 164 consecutive SVCS stent recipients.⁵ Similar results were also reported in smaller studies and case reports which reported no impact on mortality.⁵⁻⁹ These reports do, however, suggest that antiplatelet therapies may reduce stent thrombosis in the acute setting.

Given the associated burden with VKA interactions, particularly with chemotherapeutics, and its associated monitoring or safety and efficacy, the utility of antiplatelet therapy is compelling. The lack of difference in survival benefit with anticoagulation therapy despite presumed superiority in a venous system model leads us to conclude that antiplatelet therapy may be appropriate in the absence of other compelling anticoagulation indications. Antiplatelet therapy likely

reduces thrombotic risk while having lower potential for hemorrhage compared with VKAs.^{4,5}

Conclusion

We recommend using short-term antiplatelet therapy with aspirin 75 to 325 mg/day over anticoagulation in conjunction with endovascular stenting for SVCS.

References

1. Herscovici R, Szyper-kravitz M, Altman A, et al. Superior vena cava syndrome—changing etiology in the third millennium. *Lupus*. 2012;21:93-96.
2. Rice TW, Rodriguez RM, Light RW. The superior vena cava syndrome: clinical characteristics and evolving etiology. *Medicine*. 2006;85:37-42.
3. Rumbaut RE, Thiagarajan P. Arterial, venous, and microvascular hemostasis/thrombosis. In: Granger DN, Granger J, eds. *Platelet-Vessel Wall Interactions in Hemostasis and Thrombosis*. San Rafael, CA: Morgan & Claypool Life Sciences; 2010:35-42.
4. Lanciego C, Pangua C, Chacon JJ, et al. Endovascular stenting as the first step in the overall management of malignant superior vena cava syndrome. *AJR Am J Roentgenol*. 2009;193:549-558.
5. Fagedet D, Thony F, Timsit JF, et al. Endovascular treatment of malignant superior vena cava syndrome: results and predictive factors of clinical efficacy. *Cardiovasc Intervent Radiol*. 2013;36:140-149.
6. Gross CM, Kramer J, Waigand J, et al. Stent implantation in patients with superior vena cava syndrome. *AJR Am J Roentgenol*. 1997;169(2):429-432.
7. Monaco RG, Bertoni H, Pallota G, et al. Use of self-expanding vascular endoprostheses in superior vena cava syndrome. *Eur J Cardiothorac Surg*. 2003;24(2):208-211.
8. Marcy PY, Magne N, Bentolila F, et al. Superior vena cava obstruction: is stenting necessary? *Support Care Cancer*. 2001;9(2):103-107.
9. Thony F, Moro D, Witmeyer P, et al. Endovascular treatment of superior vena cava obstruction in patients with malignancies. *Eur Radiol*. 1999;9(5):965-971.

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