Peri-procedural Anticoagulation in Patients with Head and Neck vs. Extremity Venous Malformations

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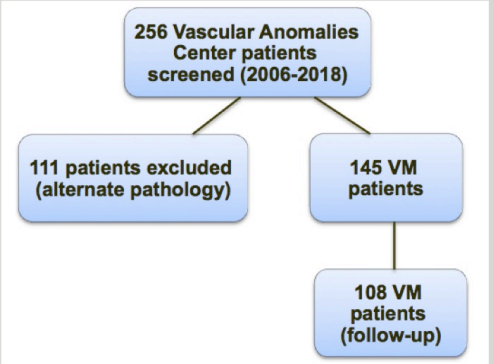
Introduction

Venous Malformations have an abnormal network of veins predisposed to increased venous stasis. The possible risk of thrombosis or thromboembolic events with venous malformations has not been clearly established.

There are 2 main aims for this project. One is to study our institution's practice regarding periprocedural anticoagulation for venous malformations and the associated risk of thromboembolic and DIC events. Second aim is to compare the risk of thromboembolic events and DIC post-procedure between H&N and extremity VM patients.

Methodology

Patients were screened for presence of venous malformations from the Vascular Anomalies Database, between 2006-2018. Of these patients, 108 had clinic follow-up. No patients with systemic coagulopathy were included in the study. Thromboembolic event was defined as a thrombus formation in a site not directly involved with surgery or sclerotherapy. The post-procedure timeframe was defined as within 2 months from the procedure (sclerotherapy or surgery).



Results

Between the 2 groups, there were no significant differences in the percentage of patients with elevated D-dimer, the average platelet level, and percentage receiving pre-procedure anticoagulation. However, approximately 10% of patients with extremity VM experienced a thromboembolic event within 2 months post-procedure. This was significant as there were no thromboembolic events in the H&N VM group. None of the patients in either group developed DIC.

	H&N	Extremity	P-value
Location, n (%)			
Deep (muscle or mucosa)	42 (84%)	33 (33%)	**p<0.001**
Superficial (skin, subcutaneous)	8 (16%)	67 (67%)	
Communication with deep veins, n (%)	6 (12%)	8 (8%)	p=0.552
VM size (1st dimension), M(SD) cm	3.49 (1.96)	4.92 (3.66)	p=0.122
VM size (2nd dimension), M(SD) cm	2.17 (1.22)	2.81 (2.03)	p=0.315
Treatment – sclerotherapy, n (%)	38 (76%)	77 (76%)	
Treatment – surgery, n (%)	10 (20%)	20 (20%)	

	H&N	Extremity	P-value
Elevated pre-procedure D-dimer, n (%)	9 (40.9%)	27 (56.3%)	p=0.305
Average platelet levels, M (SD)	244 (55)	265 (92)	p=0.726
Pre-procedure anticoagulation, n (%)	7 (17.1%)	20 (25%)	p=0.365
Presence of thromboembolic event (2 months), n (%)	0	8 (10.8%)	**p=0.049**
Average number of thromboembolic events (2 months), M(SD)	0 (0)	0.12 (0.37)	**p=0.032**
Average duration to thromboembolic event, M(SD) days	n/a	20.13 (23.14)	
Development of DIC, n (%)	0	0	-

Conclusion

Regardless of the anticoagulation and D-dimer levels, there were no thromboembolic events or DIC in the H&N VM group. Extremity VM patients had a higher number of thromboembolic events but did not develop DIC. Prospective studies are needed to distinguish if use of periprocedural anticoagulation reduces the thromboembolic risk for head and neck venous malformations. This will allow for more judicious use of prophylactic anticoagulation.

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