ELSEVIER

Blood 142 (2023) 2618–2620

The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

322.DISORDERS OF COAGULATION OR FIBRINOLYSIS: CLINICAL AND EPIDEMIOLOGICAL

Rates and Predictors of Prophylaxis in Women with Von Willebrand Disease and Heavy Menstrual Bleeding

Michelle Millions, MD[1], *Jaclyn Shelton, MD*[1], *Haowei (Linda) Sun, MD MHSc*[2]

[1]Department of Medicine, University of Alberta, Edmonton, Canada
[2]Division of Hematology, Department of Medicine, University of Alberta, Edmonton, Canada

Background: Women with von Willebrand disease (vWD) suffer from heavy menstrual bleeding (HMB) often complicated by iron deficiency anemia (IDA) and reduced quality of life. Despite the American Society of Hematology (ASH) recommendations for long-term prophylaxis in patients with severe frequent bleeds, prophylaxis remains under-utilized in women with severe HMB. Given the scarcity of data on management of gynecological bleeding, it is critical to examine our practice patterns and identify factors associated with prophylaxis use.
Aims: 1) To evaluate the management and outcomes of gynecological bleeding in vWD, including rates of desmopressin (DDAVP) and vWF prophylaxis for HMB and predictors of their use. 2) To examine the association between prophylaxis and severe HMB.
Methods: This retrospective cohort study included women ≥18 years diagnosed with vWD in the Northern Alberta Bleeding Disorders Program. We assessed the rates of HMB, severe HMB and IDA, along with their management strategies. Prophylaxis rates with DDAVP and vWF concentrates, as well as predictors of their use, were examined. Severe HMB was defined as HMB requiring Emergency Department (ED) visits, hospitalizations, blood transfusions, or surgical management (dilation & curettage [D&C], endometrial ablation or hysterectomy). IDA was defined as ferritin <30 mcg/L and hemoglobin <120 g/L. Logistic regression was used to examine factors associated with severe HMB. Variables with P-value <0.20 on univariate regression were included in multivariable regression.
Results: 168 women were evaluated with a median age of vWD diagnosis of 27 years (IQR 18-38): 140 (81%) type 1, 23 (13%) type 2, and 5 (3%) type 3 vWD. Among those with type 1 vWD, 43 (31%) had baseline vWF levels <0.30 IU/ml, 94 (67%) had vWF levels of 0.30-0.49 IU/ml, and 3 (2%) had missing values. DDAVP response was assessed in 124/140 (89%) type 1 vWD and 13/23 (57%) type 2 vWD.
There were 145 (86%) women with HMB, managed most commonly by tranexamic acid (TXA) (112; 77%), followed by hormonal therapy (73; 50%), subcutaneous DDAVP (40; 28%), and levonorgestrel intrauterine system (39; 26%). vWF prophylaxis was used in only 11 (8%) women. Surgical procedures for HMB were common including hysterectomy (28; 19%), endometrial ablation (15; 10%) and D&C (15; 10%). Over a quarter (39; 27%) received iron infusions. Of the 65 (45%) women with a history of IDA, 6 (9%) had persistent IDA >5 years, 6 (9%) had IDA lasting 2-5 years and 53 (65%) had IDA corrected within 2 years.
Prophylaxis rates did not differ between the 68 (40%) women with severe HMB and the 77 (53%) with non-severe HMB, with comparable rates of VWF use (9% vs 6%, P=0.60). Compared with women who never received prophylaxis, those who received DDAVP or vWF prophylaxis were more likely to have received TXA (93% vs 70%, P=0.003), iron infusions (43% vs 19%, P=0.004) and to have been diagnosed before 2000 (22% vs 7%, P=0.03) (Table 1). Though non-significant, a higher proportion of type 3 vWD (9% vs 1%, P=0.06) and higher ISTH-BAT (median 8 vs 7, P=0.07) were observed in prophylaxis recipients.
On multivariable logistic regression, time from first bleeding symptom to diagnosis (adjusted odds ratio [aOR] 1.04, 95% CI 1.01-1.07) and prophylactic DDAVP use (aOR 2.4, 95% 1.01-5.6) were associated with severe HMB. There was a non-significant trend towards lower odds of severe HMB in patients diagnosed in 2000-2010 and 2011-2021 as compared to pre-2000 (aOR 0.3, 95% 0.1-1.0). Diagnosis before age 18, vWD type and baseline vWF activity were not associated with severe HMB.
Conclusion: Women with vWD experience high rates of HMB and its associated complications. In our study, there was a relatively high uptake of DDAVP prophylaxis, however vWF prophylaxis was under-utilized even in those with severe HMB. We failed to demonstrate an impact of either prophylactic therapy on severe HMB, though this may be due to confounding by indication. There was a significant association between prophylactic DDAVP and vWF with other quality of care indicators including TXA and iron infusions. It is unclear if this association is related to practice patterns or patient factors such as access to care or preference for early definitive treatment. Overall, our findings highlight a need to further understand the barriers

to prophylaxis use and to consider earlier prophylaxis for severe HMB to decrease bleeding complications and the need for resource-intensive therapies.

Disclosures Sun: *Pfizer:* Honoraria; *Sanofi:* Honoraria; *Sobi:* Honoraria; *Shire:* Honoraria; *Takeda:* Honoraria.

Table 1. Characteristics of women receiving vs. not receiving prophylaxis with DDAVP or VWF concentrates for heavy menstrual bleeding.

	Prophylaxis (n=46)	No prophylaxis (n=99)	P-value
Age at diagnosis, median (IQR)	26 (17-33)	28 (19-42)	0.14
Time from bleeding to diagnosis (yrs), median (IQR)	14 (7-22)	12 (4-28)	0.86
Rural residence	9 (20)	19 (19)	0.18
vWD type			0.06
Type 1	38 (83)	85 (86)	
Type 2	4 (9)	13 (13)	
Type 3	4 (9)	1 (1)	
Baseline VWF activity, IU/ml (IQR)	0.36 (0.23-0.42)	0.33 (0.24-0.42)	0.35
ISTH-BAT score, median (IQR)	8 (6-10)	7 (5-8)	0.07
Severe bleeding requiring red cell transfusions prior to hematology referral	7 (15)	10 (10)	0.54
Severe HMB requiring ED visits	11 (24)	16 (16)	0.38
DDAVP response			0.30
Complete response	37 (80)	74 (75)	
Partial response	2 (4)	3 (3)	
No response	3 (7)	6 (6)	
Not done	3 (7)	16 (16)	
Year of diagnosis			0.03
Pre 2000	10 (22)	7 (7)	
2000-2010	17 (37)	38 (38)	
2011-2021	18 (39)	54 (55)	
Other HMB management			
Tranexamic acid	43 (93)	69 (70)	0.003
Oral contraceptives	26 (57)	44 (44)	0.24
Intrauterine system	17 (37)	29 (29)	0.09
Hysterectomy or endometrial ablation	16 (35)	24 (24)	0.26
IV iron infusions	20 (43)	19 (19)	0.004

DDAVP, desmopressin; ED, Emergency Department; HMB, heavy menstrual bleed; IQR, interquartile range.

Table 2. Factors associated with severe heavy menstrual bleeding.

	Univariate logistic regression		Multivariable logistic regression	
	Odds ratio (95% CI)	P-value	Adjusted odds ratio (95% CI)	P-value
Age at diagnosis		0.20		
<18	1			
≥18	0.6 (0.3-1.3)			
Time from bleeding to diagnosis, per year	1.03 (1.01-1.06)	0.02	1.04 (1.01-1.07)	0.005
Residence		0.19		0.19
Urban	1		1	
Rural	0.6 (0.2-1.3)		0.6 (0.2-1.3)	
Year of diagnosis				
Pre 2000	1	0.09	1	0.064
2000-2010	0.4 (0.2-1.1)	0.12	0.3 (0.1-1.0)	0.055
2011-2021	0.5 (0.2-1.2)		0.3 (0.1-1.0)	
vWD type				
Type 1	1	0.14	1	0.28
Type 2	0.5 (0.2-1.2)	0.90	0.5 (0.2-1.6)	0.70
Type 3	0.9 (0.1-5.5)		0.7 (0.1-5.2)	
Baseline vWF activity, IU/ml	0.6 (0.1-5.7)	0.70		
Prophylactic tranexamic acid	2.0 (1.0-4.1)	0.04	1.6 (0.7-3.9)	0.26
Prophylactic DDAVP	2.8 (1.4-5.9)	0.005	2.4 (1.01-5.6)	0.048
Prophylactic VWF/FVIII concentrates	1.7 (0.5-6.3)	0.37		
Loss to follow-up >5 years	0.7 (95% CI 0.4-1.5)	0.41		

DDAVP, desmopressin.

Figure 1

https://doi.org/10.1182/blood-2023-190270