



FXI LEVELS AND COAGULATION PARAMETERS IN WOMEN WITH HEAVY MENSTRUAL BLEEDING



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BACKGROUND

Gynecological abnormalities and underlying bleeding disorders can both be a contributory factor in heavy menstrual bleeding (HMB). However in approximately half of cases of HMB no pathology is found at hysterectomy and in less than 20% of the women an underlying bleeding disorder is found. Therefore, in a large proportion of women, HMB is unexplained. In our previous study, we had the unexpected finding of lower FXI plasma levels in patients with HMB compared to controls (100 vs 124 IU/dL; $p < .001$).

AIM

To confirm that FXI plasma levels in patients with HMB are lower than in controls. Furthermore, we want to investigate whether other coagulation parameters are also decreased in women with HMB without obvious deficiencies.

MATERIAL & METHODS

After informed consent patients with regular HMB (Pictorial Blood loss Assessment Chart-score >100) were included. In all women gynecological examination was performed, blood was drawn (blood count and haemostatic parameters) and a standardized questionnaire was filled out. Controls had a regular cycle and subjectively normal blood loss.

RESULTS

We included 106 patients with HMB and 53 healthy controls; 95% of the women were Caucasian. Median age was 43 years (range 18-55) in patients and 33 years (range 20-51 years) in controls ($p < .001$). The median PBAC score was 307 in patients versus 75 in controls ($p < .001$). Twenty-eight percent of patients had a low hemoglobin ($Hb < 12$ g/dL) and 28% of the patients had gynecological abnormalities (table 1). FXI levels were significantly lower in the patient group versus the control group (FXI 102 IU/dL vs 113 IU/dL; $p = .002$), even more pronounced when adjusted for age.

CONCLUSION

We confirm that FXI levels in women with HMB are significantly lower compared to controls. The other coagulation parameters do not show a similar pattern. Whether this relatively low FXI in patients plays a causative role or is the consequence of HMB is not clear.

No differences in FVIII, FIX, FXII and VWF:Ag were seen between patients and controls (table 2). Comparing patients with and without gynecological abnormalities, no differences in coagulation parameters, including FXI levels, were seen.

	Patients (n=106)	Controls (n=53)	P-value
Age, y*	43 (18-55)	33 (20-51)	<.001
Age of menarche, y*	13 (9-17)	13 (11-16)	.207
Duration of period, d*	7 (4-14)	5 (3-8)	<.001
Length of cycle, d*	28 (24-35)	28 (25-35)	.064
Body Mass Index*	24.9 (15.2-41.0)	22.2 (17.1-33.5)	<.001
Pictorial bleeding assessment chart score*	307 (105-1063)	75 (15-393)	<.001
Hemoglobin, g/dL**	12.5 (± 1.3)	13.3 (± 1.0)	<.001
Mean cell volume, fL **	85.8 (± 6.4)	89.5 (± 4.3)	<.001
Ferritin, ng/mL **	25.6 (± 27.1)	45.2 (± 30.6)	<.001
Gynecologic abnormalities, n (%)	30 (28)	-	-

*Data are given as median (range); **Data are given as mean (\pm SD).

	Patients (n=106)	Controls (n=53)	P-value
FXI, IU/dL**	101.6 (± 30.3)	113.2 (± 21.3)	.002
aPTT, sec**	26.5 (± 1.8)	26.8 (± 1.8)	.26
PT, sec**	10.8 (± 0.5)	-	-
FVIII, UI/dL**	152.1 (± 34.8)	145.6 (± 42.5)	.30
VWF:Ag, IU/dL**	96.4 (± 29.2)	88.4 (± 27.7)	.09
FIX, IU/dL**	109.3 (± 20.1)	104.3 (± 20.0)	.14
FXII, IU/dL*	106 (33-174)	103 (37-147)	.16
Fibrinogen, g/L**	2.9 (± 0.6)	-	-

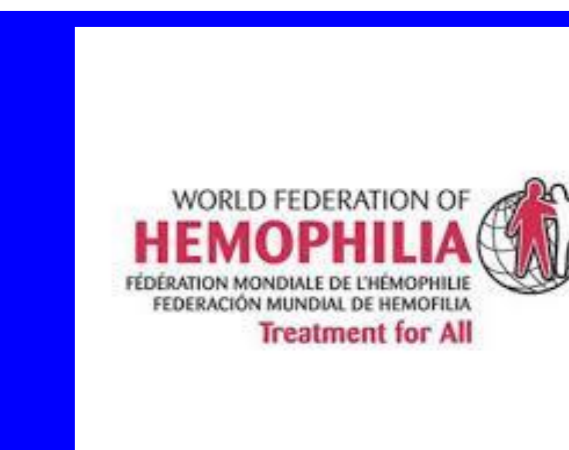
*Data are given as median (range); **Data are given as mean (\pm SD).

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