Current Postpartum Treatment Strategies for Von Willebrand Disease May Not Adequately Replace von Willebrand Factor

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OBJECTIVES

1. Obtain VWF levels in women with and without WVD and in treated and untreated patients at frequent intervals postpartum.
2. Establish normal ranges for VWF at various intervals postpartum.
3. Construct curves that could be used to predict postpartum VWF levels based on the 3rd trimester level and the immediate postpartum level.
4. Make inferences about the appropriate duration of treatment for women VWD

METHODS

Study design:
Prospective observational cohort study of women with VWD and without VWD during the postpartum period. No treatment protocols were specified, but providers were asked to refrain from prescribing prophylaxis for women whose third trimester VWF levels were > 50 IU/dL.

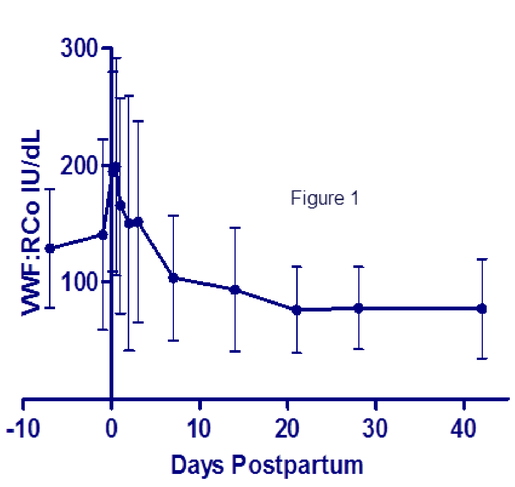
Study population:
Pregnant women with and without VWD 18 years of age and older from obstetric clinics and physician practices affiliated with 5 university medical centers and one community hospital.

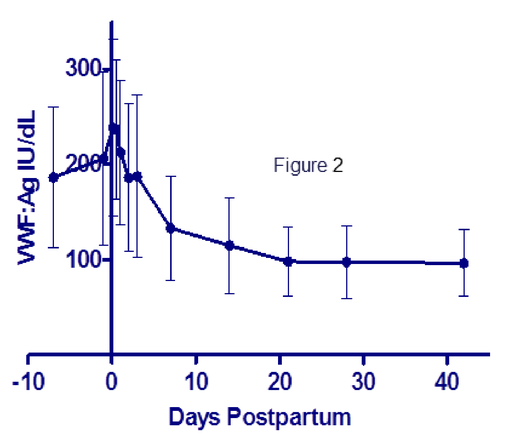
Study procedures:
Complete blood count (CBC), factor VIII (FVIII) level, von Willebrand ristocetin cofactor (VWF:RCo) level and Willebrand factor antigen (VWF:Ag) level in the 3rd trimester, on admission for childbirth, and postpartum at 4 h, 12 h, 1d, 2d, 3d, 7d, 14d, 21d, 28d, and 42d.
CBCs performed locally. Specimens processed within 4 hours of venipuncture, stored at -80˚C, then shipped to the Duke Clinical Coagulation Laboratory and run on a Dade Behring BCS Coagulation Analyzer.

Statistical Analyses:
Means compared using ANOVA and student's t test. Statistical analyses performed using JMP statistical software (SAS).

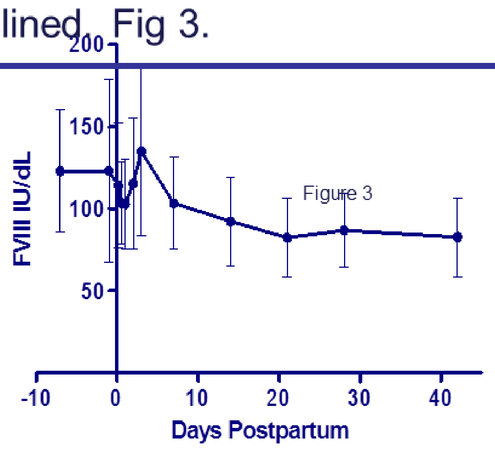
RESULTS

In the 40 women without VWD, VWF:RCo and VWF:Ag levels fell rapidly after delivery, approached baseline within 1 week and reached baseline 3 weeks postpartum. Fig 1 & 2.

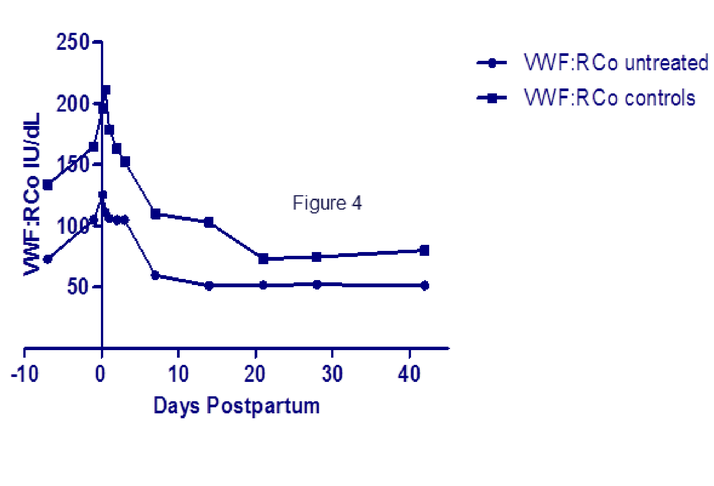


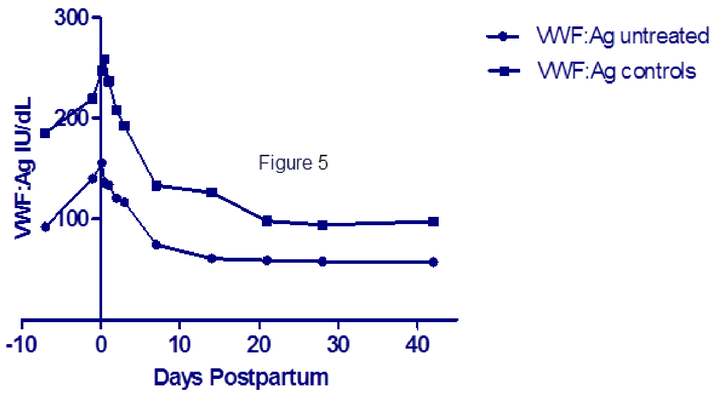


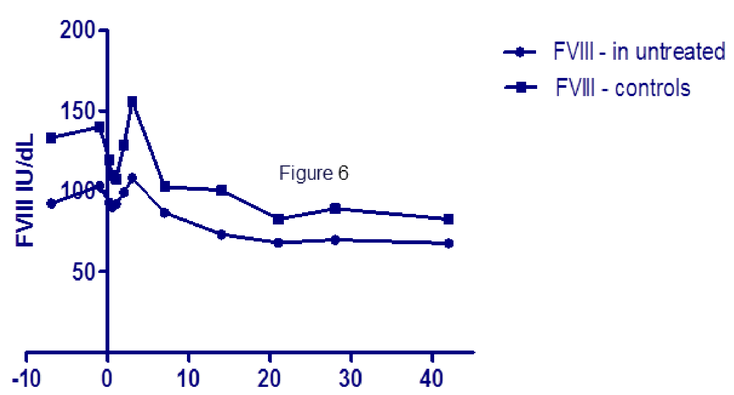
FVIII levels dropped 15% initially before peaking on day 3, then declined. Fig 3.



VWF:RCo, VWF:Ag, and FVIII levels were compared between 17 women with type 1 VWD who did not require treatment and a subset of the women without VWD who were matched for age, parity and race/ethnicity. Fig 4, 5 & 6

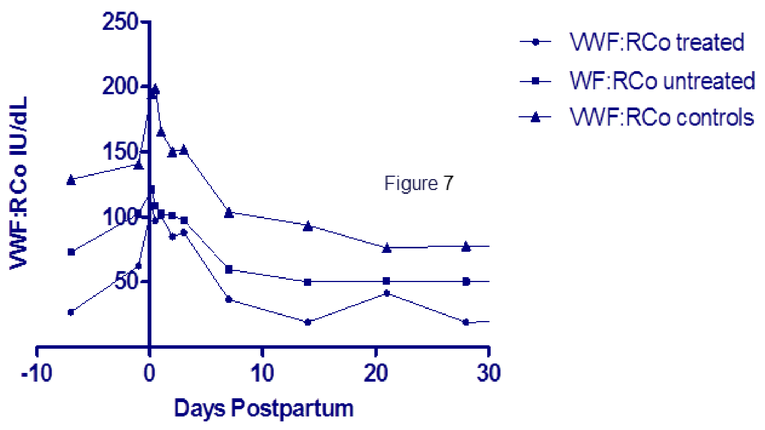


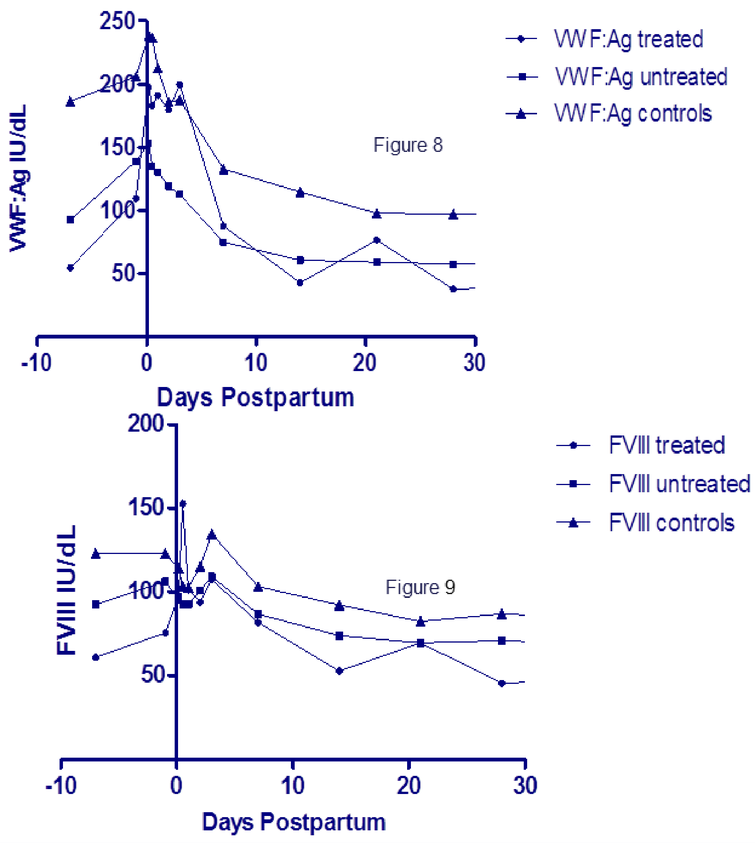




VWF:RCo, VWF:Ag, and FVIII levels paralleled those among women without VWD, but were significantly lower at almost every time point ($p < 0.05$).

14 women were treated during 16 pregnancies – 7 women with type 1 VWD; 2 with type 2A, 3 with type 2B and 2 with type 2M. Treatment consisted of VWF concentrate in 14 pregnancies, desmopressin at delivery + VWF concentrate postpartum in 1, and desmopressin in 1. Duration of treatment ranged from 1-14 days. Except immediately after delivery, FVIII and VWF:RCo levels among treated subjects paralleled those among untreated and normal subjects, but were generally lower. Overall, levels were lowest among the treated subjects. Fig 7, 8, 9.





ACKNOWLEDGEMENT

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CONCLUSIONS

VWF levels fall rapidly after delivery. Current postpartum treatment strategies do not raise VWF levels to the levels of normal women or even to the levels of women with milder, untreated VWD. Women with VWD may be at risk of delayed postpartum hemorrhage despite treatment.

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