

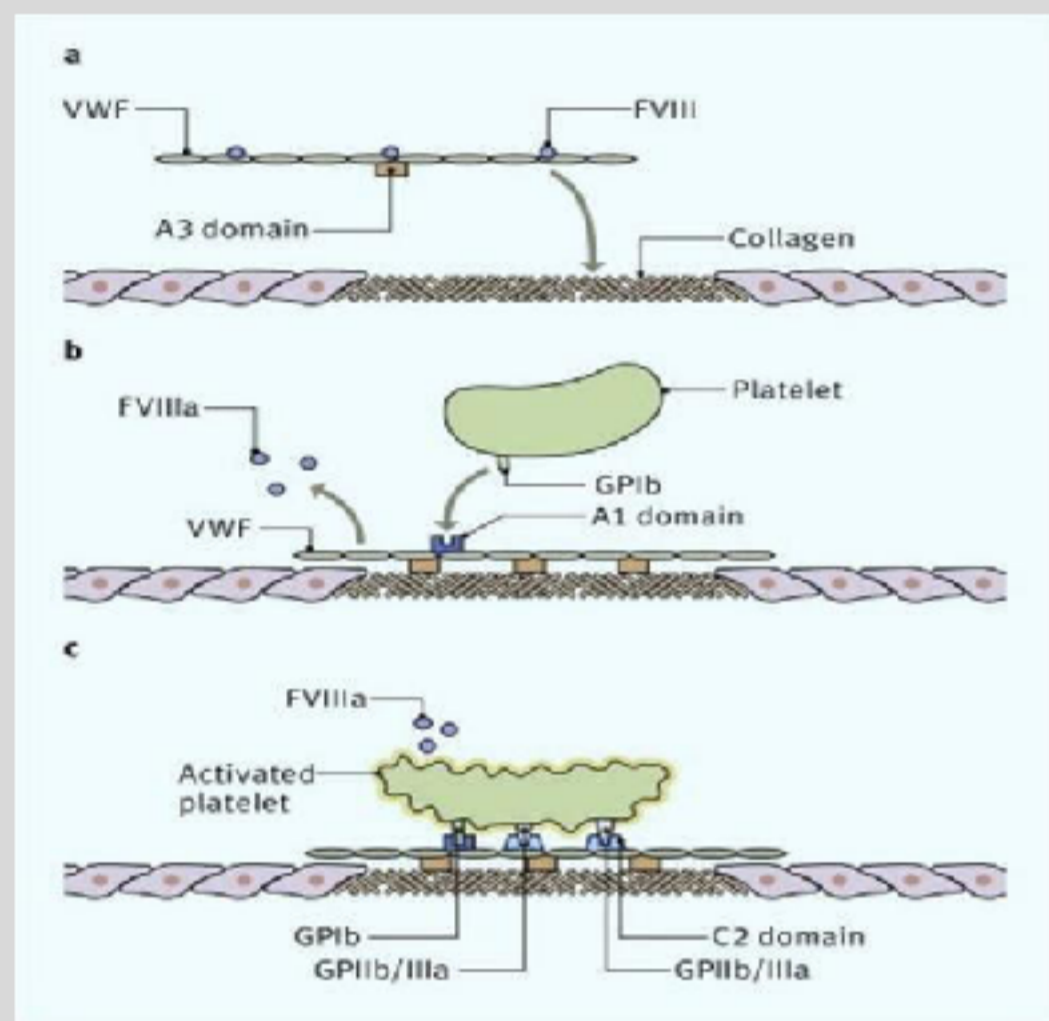
Assessment and Dental Management of Patients with von Willebrand Disease

Rebecca Schaffer, D.D.S, Pratiksha Amin, M.P.H., Robert Jones, M.S.

Arizona School of Dentistry and Oral Health

OBJECTIVES

Von Willebrand Disease (VWD) is the most common congenital bleeding disorder, affecting approximately 1 – 2% of the general population (Jover-Cerveró, Poveda-Roda, Bagán, & Jiménez-Soriano, 2007). It is characterized by von Willebrand Factor (VWF) deficit or dysfunction; mucous membrane bleeding (gingival hemorrhage, epistaxis, menorrhagia) is a common clinical manifestation (Jover-Cerveró et al., 2007). It is believed that the condition is under-diagnosed. Our objectives are to assess the dental experiences of patients with VWD for the purpose of developing dental management guidelines, and to educate dentists in screening for the disease.



Functions of VWF in high-shear conditions. [A] VWF multimer in circulation binds FVIII. At the site of vascular injury, VWF binds to exposed collagen present in the vessel wall via its A3 domain. [B] Once VWF is bound to collagen, the A1 domain becomes exposed and the initial contact of platelets can take place via the interaction of the platelet receptor GPIIb-IX-V complex and the A1 domain. VWF binding to collagen induces conformational change, which leads to release of factor VIII and its activation. [C] Platelets become activated and further binding of VWF occurs between the GPIIb/IIIa receptor and the C2 domain of VWF, which mediates spreading of the platelet and firmer adhesion (Choudhuri & Bolton-Maggs, 2011).

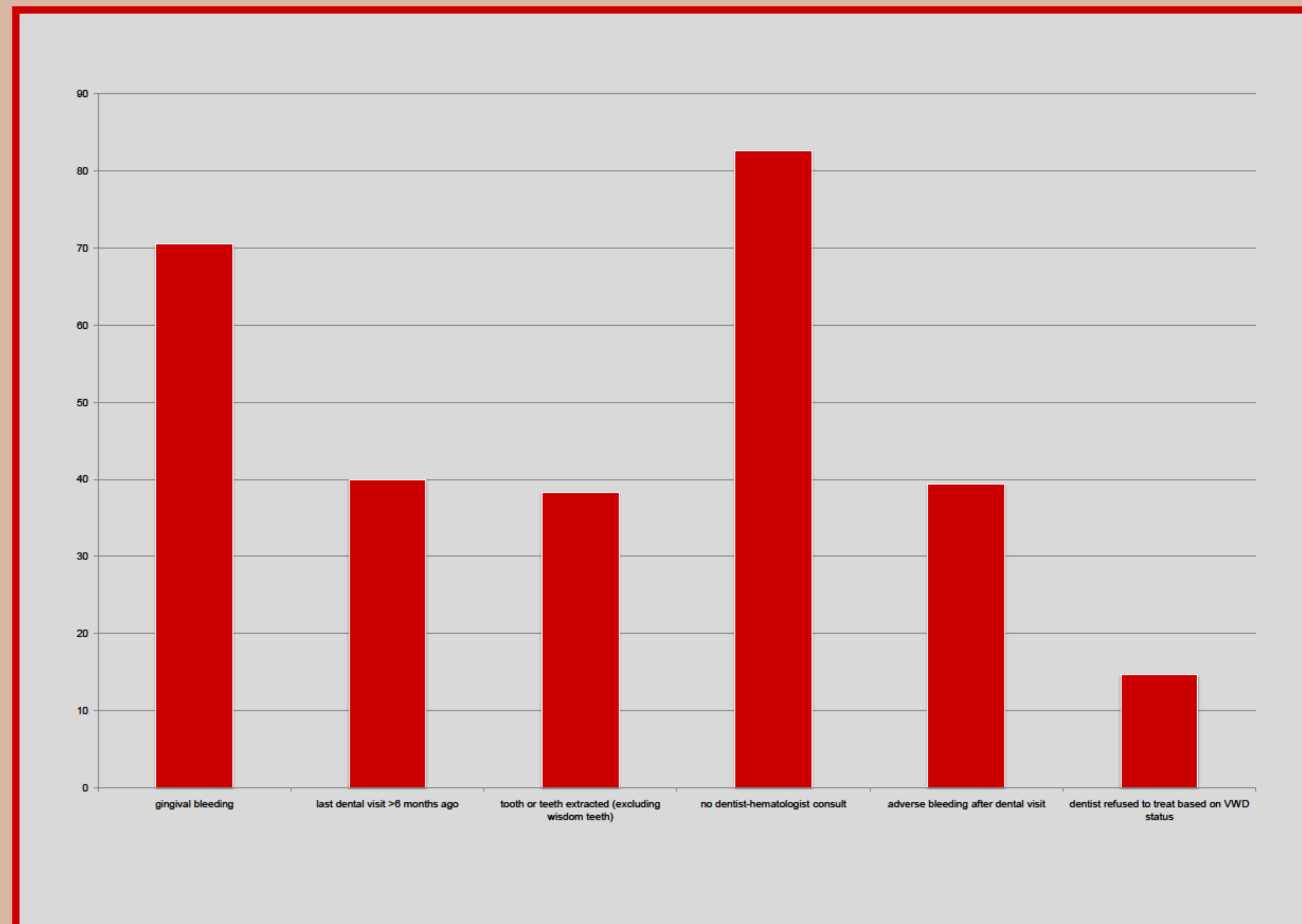
RESULTS

- 95 respondents
- 15% of respondents reported being refused dental treatment upon disclosure of VWD history
- 80% of respondents reported that their dentist did not consult their hematologist prior to delivering dental treatment
- 70% reported gingival bleeding
 - 96% of these respondents experienced gingival bleeding when either brushing, flossing or both
- 39% of respondents reported severe bleeding following dental treatment
 - 64% of this proportion infused with desmopressin, von Willebrand factor/factor VIII, aminocaproic acid, or another anti-fibrinolytic agent to address the bleeding
- 40% had not visited a dentist in the past 6 months

METHODS

A 13-question survey was administered to adults with VWD as well as parents of children with VWD at the National Outreach von Willebrand conference in February 2012. Frequencies of all responses were noted. Cross tabulations were performed between responses for multiple questions.

1. How often do you brush your teeth? a. <input type="checkbox"/> Once a day b. <input type="checkbox"/> Twice a day c. <input type="checkbox"/> Less than once a day d. <input type="checkbox"/> More than twice a day	7. Have you ever been refused dental care because of your illness? a. <input type="checkbox"/> Yes b. <input type="checkbox"/> No
2. How often do you floss? a. <input type="checkbox"/> Every day b. <input type="checkbox"/> Less than once a week c. <input type="checkbox"/> More than once a week d. <input type="checkbox"/> Never	8. Have you had serious bleeding episodes after visiting the dentist? (Bleeding that could not be controlled with pressure) a. <input type="checkbox"/> No b. <input type="checkbox"/> Yes
3. When do your gums bleed (check all that apply)? a. <input type="checkbox"/> Never b. <input type="checkbox"/> When I brush c. <input type="checkbox"/> When I floss d. <input type="checkbox"/> When I eat e. <input type="checkbox"/> When I touch them f. <input type="checkbox"/> All the time	9. If yes, did you (check all that apply)? a. <input type="checkbox"/> Call the dentist b. <input type="checkbox"/> Go to emergency room c. <input type="checkbox"/> Call your hematologist d. <input type="checkbox"/> Infuse with factor, take anti-fibrinolytic, or other medicine
4. When was your last dental visit? a. <input type="checkbox"/> Less than six months ago b. <input type="checkbox"/> Between 6 and twelve months ago c. <input type="checkbox"/> 12 months - 2 years ago d. <input type="checkbox"/> 37 months - 5 years ago e. <input type="checkbox"/> More than 5 years ago f. <input type="checkbox"/> I have never been to the dentist	10. Have you had any teeth extracted? a. <input type="checkbox"/> Yes b. <input type="checkbox"/> No
5. Was your last visit for a. <input type="checkbox"/> Routine check up, cleaning b. <input type="checkbox"/> Emergency treatment c. <input type="checkbox"/> Filling d. <input type="checkbox"/> Crowns, bridges or dentures e. <input type="checkbox"/> Extraction f. <input type="checkbox"/> Other	11. If yes, which ones (check all that apply)? a. <input type="checkbox"/> Third molars (wisdom teeth) only b. <input type="checkbox"/> Other back teeth c. <input type="checkbox"/> Front teeth
6. Did your dentist consult with your hematologist prior to your treatment? a. <input type="checkbox"/> Yes b. <input type="checkbox"/> No c. <input type="checkbox"/> Don't know d. <input type="checkbox"/> I have never been to the dentist.	12. What is your age a. <input type="checkbox"/> 21-34 b. <input type="checkbox"/> 35-45 c. <input type="checkbox"/> 46-55 d. <input type="checkbox"/> 56-65 e. <input type="checkbox"/> Over 65
	13. What is your gender a. <input type="checkbox"/> Female b. <input type="checkbox"/> Male



CONCLUSIONS

Dental professionals should be educated so that they can properly screen and treat patients who present with VWD. In turn, this will improve access to care amongst individuals with this disorder. Suggested guidelines include:

- **Careful collection** of medical history
- **Consultation** with patient's hematologist prior to first dental procedure
- **Establishment** of dental haemostatic management protocols for the patient, both prophylactic and emergent
- **Establishment** of a dental home for the patient

REFERENCES

Choudhuri, S., and Bolton-Maggs, P.H.B. (2011). Von Willebrand disorder. *Paediatrics and Child Health*, 21(8), 348 – 352.

Jover-Cerveró, A., Poveda-Roda, R., Bagán, J.V., & Jiménez-Soriano, Y. (2007). Dental treatment of patients with coagulation factor alterations: An update. *Medicina Oral Patología Oral y Cirugía Bucal*, 12, E380 – E387.

ACKNOWLEDGMENTS

Funding was provided by A.T. Still University: Arizona School of Dentistry and Oral Health. Statistical analysis was provided by Dr. Curt Bay of ATSU; guidance was provided by Drs. Donald Altman and Rebecca Schaffer of ASDOH.