**Therapy**

The type of treatment depends in part on the type of VWD a person has. Treatment options include:

**Oral Contraceptives:** raise the level of VWF in the blood.

**Desmopressin (DDAVP):** increases endogenous plasma FVIII and VWF levels by inducing their release. Desmopressin treatment is contraindicated in type 2B patients and ineffective in most other patients with type 2 and in type 3 VWD.

**Antifibrinolytic agents:** help to hold a clot in place once it has formed.

**VWF/FVIII concentrate:** used to replace and increase levels of VWF and FVIII to normal or near normal levels that can prevent or control bleeds.

VWF/FVIII concentrates can be given:

- **On demand:** to manage and control a bleed episode.
- **During surgery:** to prevent bleeding during surgery.
- **Prophylactically:** regular infusion to prevent bleeding in patients who have already demonstrated a tendency to bleed regularly.

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Treatment of choice</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 1</td>
<td>Desmopressin</td>
<td>VWF/FVIII concentrate</td>
</tr>
<tr>
<td>Type 2</td>
<td>Desmopressin, if individual responds</td>
<td>VWF/FVIII concentrate</td>
</tr>
<tr>
<td>Type 2B</td>
<td>VWF/FVIII concentrate</td>
<td>VWF/FVIII concentrate</td>
</tr>
<tr>
<td>Type 3</td>
<td>VWF/FVIII concentrate</td>
<td>VWF/FVIII concentrate</td>
</tr>
</tbody>
</table>

**References**

Women with inherited bleeding disorders

Von Willebrand disease (VWD) is a hereditary disease estimated to affect approximately 1% of the population, both men and women equally. VWD is caused by deficiency in, or dysfunction of, von Willebrand factor (VWF). VWF is an important protein in the blood that helps blood to clot.

VWD remains underdiagnosed in women with menorrhagia and potentially in other cases of abnormal bleeding. Menorrhagia (an abnormally heavy and prolonged menstrual period) is one of the most frequent symptoms in women with VWD.

There are 3 types of von Willebrand disease patients:

Type 1: Caused by a low concentration of VWF; most common and mildest type affecting approximately 70-80% of patients; symptoms are usually mild, but it is still possible to have serious bleeding.

Type 2: Caused by a defect of the VWF; it is less common, affecting approximately 20-25% of patients; symptoms are usually moderate, but serious bleeding is possible.

Type 3: Caused by a total lack of VWF in combination with low amounts of factor VIII; the rarest type, affecting less than 5% of patients; symptoms are usually more severe. It is possible for people with Type 3 to have more serious bleeding issues, such as bleeding into muscles or joints.

The most common VWD symptoms:

- Easy bruising
- Frequent nosebleeds, bleeding gums
- Heavy menstrual periods in women, starting already from menarche
- Prolonged bleeding after cuts or surgery (including dental work)
- Bleeding in the stomach, intestines, muscles or joints in severe cases

VWD is considered to be the most under-diagnosed bleeding disorder.

Know the signs

*The prevalence of menorrhagia in women with VWD is 74-92%.*

Signs of menorrhagia include the following:

- Heavily saturating tampons or sanitary pads during a period
- Staining of clothing or sheets due to heavy periods
- Becoming anemic due to blood loss during periods
- Periods that last for more than 7 days each month

Gynecological assessment

- Gynecological causes of abnormal vaginal bleeding (e.g. endometrial polyps, submucosal fibroids, cervicitis, cervical and vaginal lesions) should be excluded.
- A complete personal and family history as well as a physical examination including a pelvic/vaginal examination should be done.
- An in-depth coagulation investigation should be considered for the patient with menorrhagia in whom gynecologic causes have been ruled out.

Signs of bleeding disorders in women

If one or more of the following warning signs is positive, referring the patient to a hematologist is recommended.

Questions to ask patients suspected of having VWD or other bleeding disorders include:

1. Do you suffer from heavy menstrual bleedings, and have experienced such bleeding since your first menstrual period?
2. Do you need to use double sanitary protection to control your menstrual flow?

3. Do you need to change sanitary protection to avoid leakage during the night?
4. Do you often suffer from nose bleeds?
5. Do you often feel tired, short of breath and fatigued?
6. Do you bruise easily without being aware that you knocked yourself?
7. Do you bleed for a long time after tooth extractions, so that you had to return to the dentist to receive special treatment after extraction of a permanent tooth?
8. Do your gums often bleed and for a long time, for example after using dental floss?
9. Have you suffered from severe bleeding as a result of surgery?
10. Do you experience prolonged bleeding from wounds, and do you have to change your bandage frequently?
11. Do you have any relatives who exhibit any of the symptoms mentioned above?