

Impact of Hemophilia during Pregnancy Period Review

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Abstract: Hemophilia is a rare congenital bleeding disorder caused by deficiency or dysfunction of coagulation factors special challenges during pregnancy. its purpose a comprehensive review should outline the impact of hemophilia in pregnant women, focusing on risks, Complications, treatment strategies, and outcomes. Pregnancy increases risks for people with hemophilia bleeding complications, including spontaneous bleeding, postpartum hemorrhage and placental abnormalities. Hormonal changes, physical stress and the need for invasive measures interventions during pregnancy and delivery may increase this condition risk. Treatment of hemophilia during pregnancy includes narrowing monitor clotting factor levels, preventive treatment, and coordinated care among obstetricians, hematologists, and others expert. planning your deliveries is crucial to minimizing losses, bleeding risk, choices vary based on personal factors from vaginal birth to caesarean section.

Key points: Hemophilia, Pregnancy, Bleeding Disorders, Clotting Factor Replacement, Delivery Plan, Maternal and Fetal Result.

1. Introduction

Violence and bloodshed, historical impact the disease was present in Queen Victoria and her descendants the damaging effects of therapeutic concentrates in transmission acquired immunodeficiency syndrome (AIDS). Hemophilia is a medical, major scientific and public issue interest. This is the most common congenital coagulation disorder a disease that knows no race or geography; it is the incidence is approximately 20 per 100,000 male births. [1-3]. In his 1803 account of the illness within a family from New Hampshire, John Conrad Otto placed great emphasis on the hereditary nature of the disease, stating that it is transmitted through the X-chromosome: "This grave ailment exclusively affects males. However, even though females are not affected themselves, they can still transmit it to their male offspring." [4]. In many cases, the disease is not hereditary and does not have a family history of bleeding disorders. This is because approximately one third of patients have acquired the disease due to a recent genetic mutation. It is now understood that the absence, severe deficiency, or impaired functioning of plasma coagulation factor VIII (also known as antihemophilic factor) is responsible for this condition [5-6]. Blood coagulation usually occurs through a series of sequential enzymatic reactions in which protein cofactors (factor V and factor VIII) play an important role. [7] Very low concentrations of factor VIII (0.2 µg per milliliter of plasma) ensure adequate procoagulant function in normal subjects [8-9]; significant (>80%) reduction or absence of this factor results in coagulopathy. Factor VIII circulates in plasma in a non-covalent complex with von Willebrand factor, which has the property of increasing the synthesis of Factor VIII. [10]. It is protected from proteolysis [11], and is actively concentrated hemostatic sites. [12-13].

1-1 Objectives of the study

1. Understanding risks and complications to examine Potential risks and complications, such as bleeding episodes Maternal morbidity and mortality, and an unfavorable fetal status Consequences - which occur with pregnancy in people with Hemophilia.
2. Enhancing pregnancy outcomes: identification Variants that affect pregnant women with hemophilia and develop strategies to promote the health of both mother and child fetus.
3. Improving health care delivery: evaluating the benchmark Care and identification of pregnant patients with hemophilia opportunities to enhance health care delivery such as multidisciplinary care coordination, patient education and access to specialized services.

2- Hemophilia

Early Descriptions: Although likely present cases of hemophilia for thousands of years, the first example that occurred Its dates have been recorded to the second century AD when he was a male a child suffered severe bleeding after circumcision Talmud. And then, in the ninth century, albucasis, the Arab doctor described bleeding similar to hemophilia illness [3]. Discoveries of clotting factors: the twentieth century witnessed discovery of clotting factors, which contributed to a greater incidence understanding hemophilia. Discover Patek and Taylor A the substance (later known as factor VIII) that causes hemophilia A there was a shortage of patients in 1937. Christmas disease, or hemophilia B, it was discovered in 1952 and linked to Factor IX loss. [14-15]. Treatment progress: until the mid-twentieth century reperfusion of whole blood or plasma has been the mainstay hemophilia treatment, which was mostly supportive. Hemophilia care has changed with the invention of cryoprecipitates the 1960s and the factor was concentrated in the 1970s, which led to the emergence of treatment and prevention are more successful. [16]. Gene therapy and its prospects: through treatment basic genetic problem, recent developments in genetics therapy may provide a treatment option for hemophilia [17].

2-1. Types of hemophilia

There are two main types of hemophilia: hemophilia A: Due to clotting factor VIII deficiency.

- ✓ hemophilia B: Due to a deficiency of clotting factor IX.
- ✓ Hemophilia A the most common, accounting for about 80% of cases [18].

➤ Hemophilia A

The emergence of a hereditary bleeding disease called hemophilia A due to a deficiency of clotting factor VIII (FVIII). Because it is an X-linked recessive condition, men are the main population affected. because their blood cannot clot properly, people who suffer from hemophilia A may have prolonged bleeding, especially after surgery or injuries. [19-20]

➤ Hemophilia B

An uncommon hereditary bleeding disease called hemophilia B, Or Christmas disease, caused by a clotting factor deficiency ninth (FIX). It is an X-linked recessive disease that affects the majority of patients men, just like hemophilia A . People with hemophilia B they suffer from prolonged bouts of bleeding due to their blood It cannot clot properly [21-22].

Genetics:

Since hemophilia is an X-linked recessive disease The chromosome contains the defective gene. Usually male affected, females are carriers. however, if the girl carries mutations on both X chromosomes or is unbalanced inactivation of the X chromosome, symptoms may appear. [23]

2-2. Fundamentals of bleeding and coagulation

The human body needs bleeding and clotting maintain hemostasis, allowing blood to flow normally but it reduces excessive bleeding or clot formation. Here are some basic ideas:

- 1 Hemostasis: Vasoconstriction, platelet plug creation, and coagulation are the three phases in the process of halting bleeding. [24-25].
- 2 Vasoconstriction: A blood vessel that has been damaged will constrict to lessen blood flow to the affected area, thereby preventing excessive bleeding. [26-27].
- 3 Platelet Plug Formation: At the site of injury, platelets, which are tiny blood cell fragments, clump together to create a temporary plug. By sealing the injured blood vessel, this plug aids in the cessation of bleeding. [28-29].
- 4 Coagulation: The process of forming a stable blood clot via a sequence of intricate biochemical events involving clotting factors is known as coagulation, or blood clotting. Fibrin, which is formed by the convergence of intrinsic and extrinsic routes in the clotting cascade, fortifies the platelet plug and stabilizes the clot. [30-31].
- 5 Fibrinolysis: The process of dissolving blood clots is known as fibrinolysis. An enzyme called plasmin breaks down fibrin strands, which causes clots to dissolve. Abnormalities related to fibrinolysis may cause excessive bleeding or clotting. [32-33].
- 6 Anticoagulation: Materials that inhibit the formation of blood clots are known as anticoagulants. Therapeutically, they are used to treat or prevent blood clots in situations such as atrial fibrillation, pulmonary embolism, and deep vein thrombosis. [34-35].

2-3. The Genetics of Hemophilia

Hemophilia is primarily a genetic disorder it affects males, but women can also be carriers of this gene he may show symptoms of the disease or transmit it to him their offspring. Here is some information about genetics aspect of hemophilia in pregnant women:

1. Genetics of Hemophilia: Usually, hemophilia has an X-linked recessive inheritance pattern. This indicates that the X chromosome contains the hemophilia-causing gene. Males have one X and one Y chromosome (XY), while females have two X chromosomes (XX). A woman is regarded as a carrier if she has the hemophilia gene mutation on one of her X chromosomes. A son of a carrier mother will have hemophilia if he inherits the faulty X chromosome. Her daughter will become a carrier if she gives it to her. [36].
2. Prenatal diagnosis: Pregnant women can get it hemophilia testing during pregnancy. This test is to find it find out if the fetus has inherited the hemophilia gene mutation It can be performed by amniocentesis or chorionic villus sampling (CVS). [37].
3. Genetic Counseling: Genetic counseling can be beneficial for pregnant mothers who carry hemophilia the gene or those with a family history of the condition. Hereditary counselors can talk to parents about the possibility passing the gene on to their offspring, many pass on test options, and help them make decisions regarding family planning. [38].

2-4. General symptoms

- ✓ Extended bleeding from small wounds or injuries.
- ✓ Bruising that happens easily.
- ✓ Pain and swelling in the joints (hemarthrosis).
- ✓ In severe cases, spontaneous hemorrhage into muscles or joints[39].

2-5. Complications

Hemophilia can cause serious side effects include joint damage, persistent discomfort, and in rare instances, potentially fatal bleeding into important organs if treatment is not received. [40].

2-6. Management of Hemophilia

Hemophilia is managed with all-encompassing care intended to minimize difficulties, enhance quality of life, and prevent and treat bleeding episodes. The following are important facets of hemophilia care:

- 1 Replacement Therapy: Intravenous infusions of recombinant or plasma-derived clotting factor concentrates are used as the mainstay of treatment to replenish the inadequate clotting factor. Factor VIII concentrates are used for Hemophilia A, and Factor IX concentrations are used for Hemophilia B. [15-16-25].
- 2 Prophylactic Therapy: To avoid long-term joint damage and spontaneous bleeding episodes, prophylactic (preventive) factor replacement therapy is advised for people with severe hemophilia. Regular infusions of clotting factor concentrate at predetermined intervals are part of prophylaxis. [15-16-25].
- 3 On-Demand Therapy: Acute bleeding episodes are treated with on-demand therapy. Clotting factor concentrates are given to patients as soon as they start bleeding or notice any symptoms of bleeding. [15-16-25].
- 4 Customized Treatment Plans: A person's treatment plan should be based on their preferences, lifestyle, degree of hemophilia, and bleeding phenotype. For the best results, treatment efficacy must be closely monitored and adjusted as necessary. [15-16-25]
- 5 Hemostatic Agents: Apart from clotting factor concentrates, defibrinolytic drugs (such tranexamic acid), desmopressin (DDAVP), and recombinant activated factor VII (rFVIIa) might be utilized as adjuvant therapy to improve hemostasis under certain circumstances. [15-16-25].
- 6 Handling Complications: Part of comprehensive care is handling side effects such psychological problems, inhibitors (antibodies against clotting factors), and joint disease (hemophilic arthropathy). To treat joint injury, physical therapy, joint protective techniques, and orthopedic treatments could be required. [15-16-25].
- 7 Genetic Counseling: In order to fully comprehend the inheritance pattern, the consequences for future generations, and family planning options, genetic counseling is necessary for persons with hemophilia and their families. [15-16-25].

2-7. Risk of Hemophilia in Pregnancy

Hemophilia can cause serious problems for the mother and the fetus during pregnancy. The following are some major effects:

- 1 Increased Risk of Bleeding Complications: Hemophiliac pregnant women are more likely to experience antepartum, postpartum, and labor and delivery bleeding, among other bleeding complications [41].
- 2 Management Challenges: Maintaining hemostasis during pregnancy necessitates careful monitoring of clotting factor levels and modification of factor replacement treatment. Hematologists and obstetricians need to be involved in a multidisciplinary strategy to address this [42].
- 3 Risk to the Fetus: If either the father or the mother has hemophilia, there is a chance that the disease will be passed vertically. When a male fetus carries the hemophilia gene, there is a chance that the condition will be severe and cause issues for the child or infant in the future [43].
- 4 Delivery Considerations: In order to reduce the danger of bleeding complications, women with hemophilia should carefully choose the route of delivery. In some circumstances, a cesarean section could be advised in order to lower the risk of trauma during birth [24].

- 5 Postpartum Management: In order to prevent and control bleeding issues during the postpartum period—especially in the initial weeks after delivery—close observation and ongoing factor replacement therapy are important [41].

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