

The use of fresh frozen plasma for reproduction in severe factor V deficiency

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Summary

Objective: Severe factor V (FV) deficiency is rare. There are case reports describing pregnancy outcomes in women with FV deficiency and one case report of successful pregnancy following the use of fresh frozen plasma (FFP) in several cycles of ovulation induction and intrauterine insemination and at delivery. The authors report another case to support the use of FFP for reproduction. **Case:** A 27-year-old woman with severe FV deficiency was given FFP at the time of ovulation induced with clomiphene citrate, human menopausal gonadotropin (hMG), and human chorionic gonadotropin. Intrauterine insemination (IUI) was done 35 hours later. She became pregnant with twins and delivered vaginally at 36 weeks of gestation with the prophylactic use of FFP. **Conclusion:** Fresh frozen plasma can be offered for reproduction to women with severe FV deficiency.

Key words: Fresh frozen plasma; Reproduction.

Introduction

Factor V (FV; proaccelerin or labile factor) is an essential cofactor for the activation of prothrombin to thrombin [1]. Inherited FV deficiency is rare, with a prevalence of approximately one in 1,000,000 [2]. Type I (quantitative) deficiency can be severe, which is characterized by very low or unmeasurable levels of FV antigen and coagulant activity, with a moderate to severe bleeding phenotype [2]. Mild or moderate type I deficiency is characterized by FV plasma levels $\geq 20\%$, and approximately half of these patients are asymptomatic for bleeding episodes [1, 2]. Due to the rarity of this disorder and the small number of cases reported in the literature, information on its clinical presentation and management are limited [3,4]. With respect to FV deficiency in reproductive-aged women, there are case reports describing pregnancy outcomes in approximately 30 women [5], and one case report of successful pregnancy following several cycles of ovulation induction and intrauterine insemination [6]. The authors report an additional case, where a woman with severe FV deficiency delivered twins after prophylactic fresh frozen plasma (FFP) administration, ovulation induction, and intrauterine insemination (IUI).

Case Report

A 27-year-old Arab woman, born of consanguineous parents, was diagnosed with severe FV deficiency at the age of 14 years when she presented with acute abdomen at the time of ovulation. At that time, her FV antigen level was 5% of normal. Thereafter, she took oral contraceptives for 13 years to prevent recurrence of ovulation-related hemoperitoneum. After her marriage at age 20,

the couple was counseled against pregnancy because of the associated risks; however, after seven years they desired to have children. The oral contraceptive was stopped. She was given two units of FFP at the time of spontaneous ovulation for two cycles, and after ovulation induction with clomiphene citrate 100 mg from day 2 of the cycle for five days for another two cycles. Subsequently, she was given clomiphene citrate 100 mg from day 2 of the cycle for five days, and human menopausal gonadotropin (hMG) 150 units on day 9 of the cycle. When the mature follicle reached 18 mm, 5,000 units of human chorionic gonadotropin (hCG) intramuscularly was given with the FFP. IUI was done 35 hours later. She became pregnant with twins. Her antenatal period was uneventful. She presented in labor at 36 weeks of gestation. Her hemoglobin was 10.6 g/dl, PT 35 sec, PTT 100 sec, and INR 3.8. She was given six units of FFP. She had a spontaneous vaginal delivery, followed by atonic post-partum hemorrhage, which was managed with uterine massage, IV oxytocin, rectal misoprostol, and transfusion of two units of packed red blood cells. She was sent home in good general condition on the third post-partum day. Follow-up visits in the clinic were satisfactory.

Discussion

Pregnancy and childbirth in women with severe FV deficiency present a special clinical challenge. Advanced planning, in addition to a good understanding and awareness of the potential complications, are essential in ensuring an optimal outcome. Iwase *et al.*, in 2011, reported the first successful pregnancy in a woman with severe FV deficiency after controlled ovarian stimulation with hMG and IUI under the prophylactic use of FFP [6]. Their patient underwent five treatment cycles before achieving a pregnancy that ended in spontaneous abortion. The successful

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pregnancy was achieved on the third post-abortion cycle, with an emergency cesarean section performed at 31 weeks of gestation. In the present case, the authors escalated their interventions, beginning with FFP around the time of spontaneous ovulation for two cycles, followed by two cycles with FFP, ovulation induction, and timed intercourse. Finally, the present case underwent a single cycle with ovulation induction, prophylactic FFP, and IUI, which produced the successful pregnancy. With respect to ovulation-related hemoperitoneum in FV deficiency requiring treatment, only three cases have been reported in the literature [6].

Postpartum hemorrhage is increased in women with severe FV deficiency. Recommendations for the management of labor and postpartum period rely on substitution therapy with FFP [3]. The present case experienced post-partum hemorrhage after administration of FFP; however, it was successfully managed without complications using standard procedures.

Controlled ovulation with clomiphene and hMG, prophylactic FFP, and IUI were used to achieve pregnancy in a woman with severe FV deficiency. The present case further supports the feasibility of this approach, which can be offered to other women with severe FV deficiency who previously avoided pregnancy because of the associated risks. Appropriate monitoring and care must be provided.

Conclusion

Fresh frozen plasma can be offered for reproduction to women with severe FV deficiency.

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