



Increased risk of postpartum hemorrhage in cesarean delivery

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To the Editor:

We read with great interest the article “Singleton pregnancy using in vitro fertilization or intracytoplasmic sperm injection does not increase risk of bleeding in cesarean delivery: a retrospective cohort study” by Mariko Aizawa and colleagues [1]. In their study, the authors evaluate bleeding risk during and after cesarean delivery in parturients who conceived using assisted reproductive technology (ART) including in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI). They retrospectively analyzed a cohort of 310 women who underwent cesarean delivery. They compared data from 155 women who conceived with IVF or ICSI (IVF/ICSI group) with those from 155 women who conceived spontaneously (control group). As primary outcome, they evaluated the amount of bleeding during and within 24 h after cesarean delivery and they did not find statistical difference between groups ($p=0.12$). They also compared incidence of severe postpartum hemorrhage (PPH), as secondary outcome, and their highlighted that the incidence did not differ significantly ($p=0.16$). Notably, presented findings contrast with previous studies and meta-analyses showing an increased risk of complications, including PPH in IVF/ICSI pregnancies, as the authors themselves

cite in their article. The authors state that IVF/ICSI itself does not increase the amount of bleeding in cesarean section. The authors conclude that the two groups are comparable because they adjusting for potential confounders including BMI, parity, age, prior uterine surgery, pregnancy with uterine myoma or adenomyosis, placenta disorders, amniotic fluid abnormalities, HELLP syndrome, elective or emergent cesarean.

In this study, parturients with multiple pregnancies were excluded from both the groups. Of note, twin pregnancies are often associated with an increased risk of peripartum bleeding with a markedly increased rate of PPH in ART-conceived twin pregnancies compared to spontaneously conceived twins [2, 3].

The authors point out that the no clinically significant difference in the amount of bleeding between the two groups can be attributed to the comparable distribution of placenta previa, placenta accreta and placenta abruption. But pregnancies arising with assisted fertilization techniques, compared to spontaneous pregnancies, are associated with a greater incidence of placental disorders which are associated with a greater risk of complications including severe PPH [4, 5]. In addition, in the control group, parturients had greater parity and past history of repeat cesarean sections compared to the IVF/ICSI group. These are known risk factors [6] for bleeding in cesarean section regardless of whether the authors justify it with a higher number of women in the IVF/ICSI group with history of myomectomy and adenomyosis.

Furthermore, to measure the amount of blood lost, the authors affirm they used both direct measurement (suction bottles, weight of blood-soaked gauze and drapes) and visual estimation of blood on the floor.

Some methodological aspects might have biased the collected data analysis, these include:

The selection criteria in the “control group” might have contributed to identify parturients with spontaneously pregnancies with characteristics of increased risk of bleeding conversely, among those who conceived with IVF/ICSI those with the lower risk of bleeding thus inducing a pre-inclusion bias.

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The method used to quantify bleeding might have included a secondary bias. To measure the amount of blood lost, the authors used both direct measurement (suction bottles, weight of blood-soaked gauze and drapes) and visual estimation of blood on the floor. We question how objective and reliable quantitative measurement of blood loss is with the visual evaluation of the amount of blood on the floor.

Pre-operative and post-operative hemoglobin could provide better information on the actual amount of blood loss? Especially considering that in the intra-procedural phase, blood loss and amniotic fluids both contribute to “visual” loss.

A different hemostatic intervention may have had an influence on the blood loss.

Declarations

Conflict of interest The authors have no conflicts of interest.

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