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Incidence of postpartum hemorrhage based on the improved combined method in evaluating blood loss

Fangyuan Zheng[1], Haiyan Wen[1]

[1]Hangzhou women's hospital

Fangyuan Zheng

DISCLAIMER

The authors have no conflicts of interest to declare.

ABSTRACT

In view of the current clinical inaccuracies and underestimations of postpartum hemorrhage amount, this study aims to investigate the incidence, etiology, clinical characteristics of postpartum hemorrhage in different modes of delivery based on the combination of volumetric method, gravimetric method and area method in evaluating blood loss.

IMAGE ATTRIBUTION

None

Keywords: Caesarean section, Estimation of blood loss, Forceps, Incidence, Postpartum hemorrhage, Vaginal delivery

Design

1 This retrospective cohort study was conducted in Hangzhou Women's Hospital from January 2020 to June 2021. Based on different modes of delivery, the participants were divided into three groups: vaginal delivery, forceps delivery, and cesarean section, for comparison. Blood loss, incidence, and causes of postpartum hemorrhage in different delivery groups (vaginal delivery, forceps delivery, and cesarean section groups) were compared using an improved combined assessment method of blood loss, which is a standardized method for estimating blood loss during delivery that includes both visual and quantitative assessments.

Inclusion and exclusion criteria

2 The inclusion criteria required participants to have a gestational week of delivery of ≥28 weeks and to have given birth in the hospital. Participants with severe liver and kidney dysfunction, severe hematological diseases (excluding anemia and simple thrombocytopenia), or incomplete information were excluded.

Definition of postpartum hemorrhage

3 PPH is defined as blood loss ≥500 mLs following vaginal birth or ≥1000 mLs following caesarean section within 24 hours.Severe PPH refers to blood loss ≥1000 mLs or hypovolemic shock within 24 hours after delivery.

Quantitative assessment methods of postpartum blood loss

4 The combined method can be divided into the following three steps. Firstly, the volume of the blood collection basin used in vaginal delivery and the suction bottle used in cesarean section can be directly read (the volume of amniotic fluid and irrigating fluid need to be deducted). During vaginal delivery, when the amniotic fluid had basically flowed completely after fetal birth, then the blood collection basin was placed under the maternal buttocks to collect blood loss. The medical covering drape used in cesarean section is waterproof, which can collect amniotic fluid and blood loss effectively. During cesarean section, the assistant used a negative pressure aspirator to collect as much amniotic fluid as possible after the rupture of amniotic membrane and record the amount of amniotic fluid in the suction bottle. Then removed the amount of amniotic fluid when calculating the blood loss in the suction bottle. Secondly, the remaining bleeding on the operating table was calculated by the area method (10cm×10cm is referred as

10 mL). At last, the perineal pad was placed under maternal buttocks until 24 hours after delivery. The perineal pad would be replaced several times, and the final weight was calculated totally (blood volume (mL) = (the weight of the pad used - the weight before use)/1.05). The sum of the blood loss in the above three steps is the total blood loss within 24 hours after delivery.