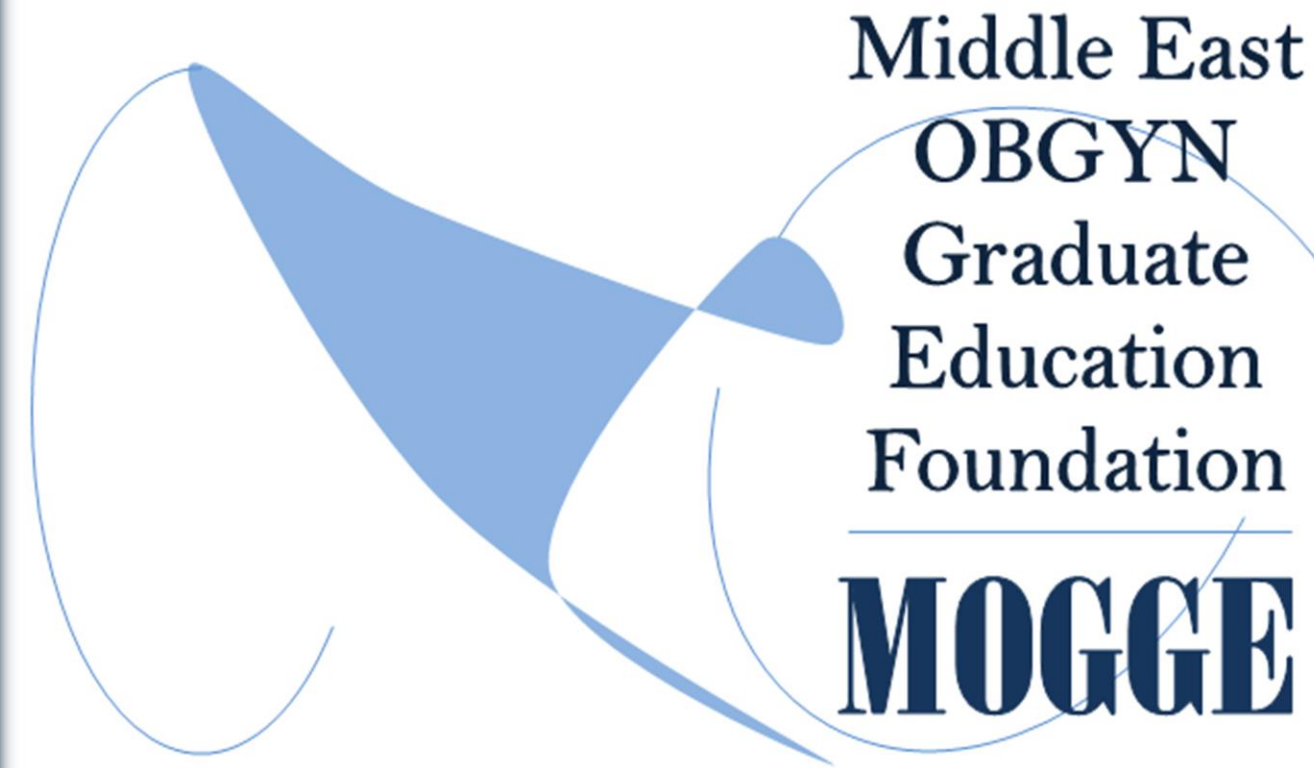




Uterus Preservation Versus Caesarean Hysterectomy in Management of Placenta Accreta Spectrum: A Multicenter International Study

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Abstract

Objective: To compare peripartum outcomes of uterus preserving procedures to caesarean hysterectomy in women with placenta accreta spectrum (PAS), and to identify risk factors associated with adverse maternal outcomes.

Methods: PAS-ID is a multicenter international retrospective study conducted by 11 tertiary centers from 9 countries. Women with PAS who were managed in participating centers between January 1st, 2010, and December 31st, 2019, were included. Primary outcome was massive PAS-associated perioperative blood loss (intraoperative blood loss $\geq$ 2500 ml, bleeding associated massive transfusion protocol, or complicated by disseminated intravascular coagulopathy) (ClinicalTrials.gov identifier: NCT04384510).

Results: Out of 797 women, 727 were eligible for the study. Five hundred ninety-two (81.43%) women were managed by uterus preserving procedures versus 135 (18.56%) who underwent caesarean hysterectomy. After adjustment for potential confounders, type of management was not associated with higher risk of massive blood loss (aOR 1.71, 95% CI 0.78 - 3.81). Other factors associated with higher risk of massive blood loss included body mass index, preoperative hemoglobin, centrally located placenta, diffuse placental invasion, parametrial invasion, and intrauterine fetal death.

Conclusion: In the presence of sufficient experience, uterus preserving procedures may not be associated with higher risk of massive blood loss compared to caesarean hysterectomy.

Introduction

Placenta accreta spectrum (PAS) is a spectrum of placental abnormal implantation, in which trophoblastic growth invades layers of the uterine wall to various degrees (1). The rising trend of caesarean deliveries (CD) has changed the epidemiology of PAS globally from a rare, serious, condition to an increasingly common major obstetric complication. In the last decade, the incidence of PAS rose to 1 in 730 deliveries (2)(3). This adversely impacted the maternal outcomes leading to increase the prevalence of maternal morbidity including massive obstetric haemorrhage, coagulopathy, ICU admission, and prolonged hospitalization and even higher rates of mortality especially in low resources countries (4). Caesarean hysterectomy is endorsed as the best primary management approach for PAS by international societies (5-7). On the other hand, the practice of uterine preservation techniques is increasing worldwide out of the desire of many women to preserve their future fertility (8)(9). Despite the increasing experience of performing these procedures and its preferable outcomes, evidence on efficacy and safety of most uterus preserving procedures are limited due to many factors such as lack of confined studies, small sample size, and many unrecorded data.

Placenta accreta spectrum international database (PAS-ID) is a try to fill the gap between evidence-based recommendations and current practice regarding PAS management in many countries through a large international multicenter study on women with PAS.

Methodology

Study Design: PAS-ID is a multicenter international retrospective study conducted by 11 tertiary centers from 9 countries.

Inclusion Criteria: Women with PAS who were managed in participating centers between January 1st, 2010, and December 31st, 2019, were included. Data must include clinical and histopathological diagnosis of PAS, management, and delivery by the respective center, including at least 6 weeks of postpartum follow-up. Patients with incomplete documentation, inadequate antenatal or postpartum follow-up, or no documented authorization to use clinical data for research purposes, were excluded.

Outcomes: Primary outcome was massive PAS-associated perioperative blood loss (intraoperative blood loss $\geq$ 2500 ml, bleeding associated massive transfusion protocol, or complicated by disseminated intravascular coagulopathy). (ClinicalTrials.gov identifier: NCT04384510).

Ethical details: Before the study was conducted, all participating centers obtained institutional review board (IRB) approval.

Results

Out of 797 women, 727 were eligible for the study. Five hundred ninety-two (81.43%) women were managed by uterus preserving procedures versus 135 (18.56%) who underwent caesarean hysterectomy. After adjustment for potential confounders, type of management was not associated with higher risk of massive blood loss (aOR 1.71, 95% CI 0.78 - 3.81). Other factors associated with higher risk of massive blood loss included body mass index, preoperative hemoglobin, centrally located placenta, diffuse placental invasion, parametrial invasion, and intrauterine fetal death (as shown in the table below)

	Univariate logistic regression	P value	Multivariable logistic regression	P value
Management method	0.36 [0.24 - 0.56]	0.0001	1.71 [0.78 - 3.81]	0.182
BMI	1.10 [1.05 - 1.15]	<0.0001	1.09 [1.02 - 1.15]	0.009
Preoperative hemoglobin	0.79 [0.69 - 0.91]	0.001	0.77 [0.65 - 0.92]	0.004
Placental site (posterior low, central)	0.22 [0.10-.46] 1.52 [0.99-2.34]	0.0001 0.055	1.01 [0.39 - 2.62] 2.28 [1.25 - 4.18]	0.985 0.007
Organ invasion	2.65 [1.85 - 3.79]	0.0001<	Bladder: 3.08 [1.95 – 8.61] Parametrial: 5.37 [1.21 – 23.79]	< 0.0001 0.027
IUFD	5.79 [1.74-19.25]	0.005	10.25 [1.51 – 69.34]	0.014

This table shows the Logistic regression of prenatal and perioperative variables and massive blood loss associated with PAS
Abbreviations: BMI: body mass index; IUFD: intrauterine fetal death

Recommendations

Uterus preservation procedures may be comparable to caesarean hysterectomy in probability of perioperative massive blood loss if robust experience in performing these procedures is available. Taking in consideration, the study was conducted in PAS referral centers, with long experience in uterus preserving procedures. Thus, uterus preserving procedures should only be considered in experienced centers. Based on the retrospective nature of this study, prospective studies may be recommended to validate these conclusions.

Conclusion

In the presence of sufficient experience, uterus preserving procedures may not be associated with higher risk of massive blood loss compared to caesarean hysterectomy.

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