DOI: https://doi.org/10.53555/nnmhs.v9i3.1621 Publication URL: https://nnpub.org/index.php/MHS/article/view/1621

ASSOCIATION BETWEEN THE AGE OF PREGNANT WOMEN AND PARITY WITH THE INCIDENCE OF PLACENTA PREVIA : SYSTEMATIC REVIEW

Prayudha Tegar Perbawa[1*], Mutia Juliana[2]

[1]Faculty of Medicine, General Achmad Yani University, Indonesia*
[2]Faculty of Midwifery, Immanuel School of Health Sciences, Indonesia

Corresponding Author :
yudhategarp@gmail.com

Abstract

Placenta previa is associated with an increased risk of premature birth, fetal death during intrauterine development, and asphyxia in neonates. Vaginal bleeding that is not unpleasant is one of the telltale signs of placenta previa. It is estimated that 5.2% of pregnancies would be affected by the common obstetric condition known as placenta previa. Sometimes there are no symptoms associated with placenta previa. During the second half of pregnancy, the primary symptom is vaginal bleeding that is brilliant red and completely painless. Moreover, this syndrome can cause excessive bleeding prior to or throughout the labor process. The uterus should have some scars on it as a result of a surgery or procedure that was performed in the past. a previous pregnancy in which you experienced placenta previa is considered to be a risk factor. Having a previous cesarean section (CS), having an abortion, being older than 35 years old, having more than one child, and using assisted reproductive technologies (ART) such in vitro fertilization are all variables that can increase the likelihood of developing placenta previa (IVF). It appears that the risk of placenta previa increases with both the mother's age and the number of previous pregnancies. Despite the fact that research has shown that the association is not consistent at all.

Keyword: *Age; Parity; Placenta Previa; Pregnancy*

INTRODUCTION

The condition known as placenta previa occurs when the implanted placenta covers the internal os of the cervix, so obstructing the delivery canal. Placenta previa can result in complications such as antepartum and postpartum hemorrhage, leading to maternal mortality.[1] Placenta previa raises the risk of premature birth, suffocation, and intrauterine fetal mortality in newborns. Placenta previa is characterized by non-painful vaginal hemorrhage. Placenta previa is a common obstetric issue that occurs in 5.2% of pregnancies.[2–4]

In this circumstance, the placenta partially or completely obstructs the cervix's internal orifice. There are four forms of placenta previa, including low-lying placenta, marginal, partial, and total placenta previa.[5] The disease's pathophysiology is not well understood. Placenta previa is associated with maternal and fetal complications, including placental adhesion, antepartum and postpartum hemorrhage, malpresentation, intrauterine growth restriction (IUGR), thrombophlebitis, preterm labor, and septicemia.[2,4,6]

Placenta previa is occasionally asymptomatic. The main symptom is painless bright red vaginal bleeding during the second half of pregnancy. This condition can also cause heavy bleeding before or during labour. Because of an earlier operation or procedure, the uterus should have some scars. a prior pregnancy in which you suffered from placenta previa. Placenta previa risk factors include a history of cesarean section (CS), abortion, maternal age, multiparas, and the use of assisted reproductive technologies (ART) such as in vitro fertilization (IVF).[7–9]

This article discusses the association between the age of pregnant women and parity with the incidence of placenta previa.

METHODS

For data collection, processing, and reporting, this study adhered to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 project criteria. Based on these factors, the adopted regulations were formulated. The goal of this literature review is to look at the relationship between pregnant women's age and parity and the incidence of placenta previa.

These are the primary issues raised by the current study. 1) To be considered for publication, articles must always be written in English and emphasize the link between pregnant women's age and parity and the prevalence of placenta previa. 2) Articles published after 2015 but before the period of this systematic review were considered for this evaluation. The anthology will not include editorials, submissions without a DOI, reviews of previously published articles, or entries that are substantially identical to those in the journal.

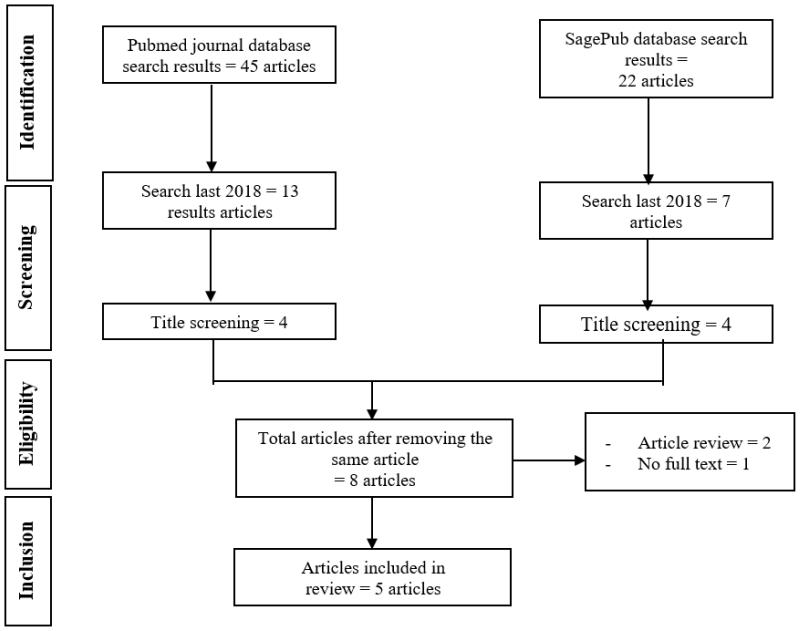

Figure 1. Article search flowchart

The search for studies to be included in the systematic review was carried out from March, 13th 2023 using the PubMed and SagePub databases by inputting the words: “parity”, “age of pregnant women” and “placenta previa”. Where *("parities"[All Fields] OR "parity"[MeSH Terms] OR "parity"[All Fields]) AND ("agrosyst geosci environ"[Journal] OR "age"[Journal] OR "age omaha"[Journal] OR "age dordr"[Journal] OR "adv genet eng"[Journal] OR "age"[All Fields]) AND ("pregnant women"[MeSH Terms] OR ("pregnant"[All Fields] AND "women"[All Fields]) OR "pregnant women"[All Fields]) AND ("placenta praevia"[All Fields] OR "placenta previa"[MeSH Terms] OR ("placenta"[All Fields] AND "previa"[All Fields]) OR "placenta previa"[All Fields])* is used as search keywords.

The authors evaluated the eligibility of each study based on its abstract and title. The authors subsequently choose historical literature as their primary source. After analyzing numerous studies that all came to the same conclusion, unpublished English-only submissions are required. Only studies that met the inclusion criteria were included in the systematic review. This limits search results to those that match the query. Following that, the research will be evaluated. Names, authors, publication dates, location, study activities, and parameters were revealed by the study analysis. After placing search results in an EndNote file, the database was purged of duplicate articles. Two reviewers evaluated the relevance of each paper's title and abstract to this study.

Before picking which publications to investigate in greater detail, each author independently reviewed the research described in the publication's title and abstract. Next, we will examine all of the publications that satisfy the review's criteria and should be included. When our study is complete, we will select the pertinent research papers for the review. On the basis of this rule, the manuscripts to be reviewed will be selected. The procedure of selecting articles for further examination should be simplified as much as possible. Which prior studies were conducted, and what about them permitted their inclusion in the review, if applicable?

RESULT

King, et al (2020)[10] conducted a retrospective cohort study was conducted in which 705 pregnant women between 17 and 24 weeks gestation were identified from a single institution between 2003 and 2017. They showed there was a sevenfold increase in the risk of persistent placenta previa among women who had previously undergone cesarean delivery (odds ratio [OR] = 7.0, 95% confidence interval [CI] = 3.7–13.1). There is an almost threefold increase in the likelihood of persistent placenta previa after a history of intrauterine curettage or evacuation in the setting of placenta previa (OR = 2.5, 95% CI = 1.3–5.0).

Second study conducted a study and they showed that the number of previous cesarean sections was the strongest predictor of PAS in placenta previa instances [aRR for one previous cesarean section 5.34, 95% CI = 3.70–7.71; aRR for two or more previous cesarean sections 16.5, 95% CI = 11.5–23.6]. Previous cesarean section did not predict placenta previa, but ART conception did (aRR = 5.05, 95% CI = 4.50–5.66). PAS for blood transfusion and hysterectomy was greater in instances with placenta previa, whereas those without had non-negligible risks.[11]

Kuribayashi, et al (2021)[12] study showed that 130 (55.7%) of the 233 women involved in this study had APH. In the APH group, gestational age and birth weight were considerably lower than in the group without hemorrhage. In both univariable and multivariable analyses, maternal age 30 years and multiparity were found to be significant risk factors for APH. Focusing on the prior method of delivery in multiparous women, the risk of APH was substantially greater in multiparous women who had at least one vaginal delivery compared to nulliparous women (adjusted odds ratio (aOR) = 3.42 [95% CI = 1.83 to 6.03]).

Table 1. The litelature include in this study

Author	Origin	Method	Sample	Conclusion
King, 2020[10]	USA	Retrospective cohort study	705 pregnant women diagnosed with low-lying placenta or placenta previa	**Parity:** Women with a prior cesarean delivery were seven times more likely to have persistent placenta previa (odds ratio = 7.0, 95% CI = 3.7–13.1).
Ozdemirci, 2020[11]	Turkey	Multicenter cross-sectional study	472,301 singleton deliveries	**Parity:** There is no correlation between the number of pregnancies a woman has had and the risk of having a placenta that is positioned anteriorly. **Maternal age:** There is no correlation between the age of mother a woman with a placenta previa.
Kuribayashi. 2021	Japan	Retrospective cohort study	233 women with singleton pregnancies	**Parity:** placenta previa is common in pregnant women aged <30 years. **Maternal age:** multiparity was associated with the highest risk of placenta previa.
Heena, 2020[13]	India	Retrospective cross-section study	18 emergency hysterectomy	**Maternal age:** multiparity was associated with the highest risk of placenta previa.
Matsuzaki, 2021[4]	USA	Population-based retrospective, observational study	2,727,477 cases who underwent cesarean delivery	**Parity:** placenta previa is common in pregnant women aged >30 years. **Maternal age:** grande multiparity was associated with the highest risk of placenta previa.

Other study conducted during an eight-year period, we collected 18 emergency hysterectomy specimens, of which placenta accreta accounted for 55.5% (10/18), placenta increta for 38.8% (7/18), and placenta percreta for 5.5% (1/18). Examination of results by parity reveals that uniparous women account for up to 22,2 percent (4/18), whereas multiparous women account for 77% (14/18). Analysis of risk factors reveals a history of caesarean section in 55.5% (10/18), placenta previa in 33.3% (6/18), and pre-eclampsia in 11.1% (2/18).[13]

Other study showed 8,030 (0.29%) of 2,727,477 cesarean deliveries exhibited placenta accreta spectrum. Placenta accreta, percreta, and increta were the most prevalent diagnoses. Placenta accreta spectrum cases rose 2.1% each quarter from 0.27% to 0.32% (P = 0.004). On multivariable analysis, patient demographics (older age, tobacco use, recent diagnosis, higher comorbidity, and use of assisted reproductive technology), pregnancy characteristics (placenta previa, previous

cesarean delivery, breech presentation, and grand multiparity), and hospital factors (urban teaching center and large bed capacity hospital) were independently associated with placenta accreta spectrum (all, P <0.05).[4]

DISCUSSION

Placenta previa is an abnormal positioning of the placenta covering the os either partially or completely. The risk of placenta previa increases in females with a history of prior cesarean section. It endangers the lives of both mother and fetus.[14] There is a correlation between previa and an increased risk of maternal morbidity and mortality. Postpartum hemorrhage (PPH), the primary cause of maternal morbidity and mortality globally, is more likely to occur in women who

have been diagnosed with previa.[15]

Proper placentation and implantation are essential for pregnancy success. Due to improper placenta development and implantation, late pregnancy problems such as preeclampsia and preterm labor have their origins in the first trimester. Initial adhesion of the blastocyst to the uterine wall is known as apposition; in the second stage, micro villi present on syncytiotrophoblasts interdigitate on the apical surface of the luminal epithelium; and in the final stage, there is increased physical interaction between the trophectoderm and the uterine luminal epithelium.[8,16]

It appears that the risk of placenta previa increases with both the mother's age and the number of previous pregnancies. Despite the fact that research has shown that the association is not consistent at all. The findings of this article were reinforced by the findings of a second study conducted other study in 2016, which found that 33.5% of patients with placenta previa were between the ages of 23 and 45.[17] Both of the earlier investigations arrived at findings that are consistent with this one. In addition, the current study discovered that 27 (64.3% of patients) with no symptoms complained of painless vaginal bleeding, while 15 (35.7% of patients) with symptoms did.

Elhaj (2017) study indicated that 26 (61.9% of patients) arrived with no complaints, and 16 (38.1% of patients) had painless vaginal bleeding. A study by Elhaj published in 2017 showed that multiparous women were more likely to have placenta previa (85.8%), which is consistent with the findings of the current study, which found that multiparous patients had a significantly increased risk of placenta previa 12 (28.6%). The findings of both research were comparable with regard to equality.[18]

It has been proved beyond a reasonable doubt that there are risk factors connected with the development of previa. The literature suggests that the following maternal risk factors are associated with an increased likelihood of preterm birth: advanced maternal age (AMA), a previous history of stillbirth, a previous history of cesarean delivery, a previous history of dilatation and evacuation (D&E), pregnancy, smoking during pregnancy, and substance abuse. The vast majority of cases of previa are identified during the second trimester of pregnancy; of these, 90–95% resolve by the third trimester. The remaining cases are diagnosed as having chronic placenta previa (PPP).[19–21]

CONCLUSION

Advancing maternal age and multiparity appears to increase the occurrence of placenta previa. Although research showing that the relationship is still inconsistent.

REFERENCE

[1]. Cresswell JA, Ronsmans C, Calvert C, Filippi V. Prevalence of placenta praevia by world region: a systematic review and meta-analysis. Trop Med Int Heal. 2013;18(6):712–24.
[2]. Faiz AS, Ananth C V. Etiology and risk factors for placenta previa: an overview and meta-analysis of observational studies. J Matern neonatal Med. 2003;13(3):175–90.
[3]. Wu S, Kocherginsky M, Hibbard JU. Abnormal placentation: twenty-year analysis. Am J Obstet Gynecol. 2005 May;192(5):1458–61.
[4]. Matsuzaki S, Mandelbaum RS, Sangara RN, McCarthy LE, Vestal NL, Klar M, et al. Trends, characteristics, and outcomes of placenta accreta spectrum: a national study in the United States. Am J Obstet Gynecol. 2021 Nov;225(5) :534.e1-534.e38.
[5]. Jauniaux E, Collins S, Burton GJ. Placenta accreta spectrum: pathophysiology and evidence-based anatomy for prenatal ultrasound imaging. Am J Obstet Gynecol. 2018 Jan;218(1):75–87.
[6]. Karami M, Jenabi E, Fereidooni B. The association of placenta previa and assisted reproductive techniques: a meta-analysis. J Matern Neonatal Med. 2018;31(14):1940–7.
[7]. Committee opinion no. 529: placenta accreta. Obstet Gynecol. 2012 Jul;120(1):207–11.
[8]. Gibbins KJ, Einerson BD, Varner MW, Silver RM. Placenta previa and maternal hemorrhagic morbidity. J Matern neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet. 2018 Feb;31(4):494–9.
[9]. Gao Y, Gao X, Cai J, Han F, Xu G, Zhang X, et al. Prediction of placenta accreta spectrum by a scoring system based on maternal characteristics combined with ultrasonographic features. Taiwan J Obstet Gynecol. 2021 Nov;60(6):1011–7.
[10]. King LJ, Mackeen AD, Nordberg C, Paglia MJ. Maternal risk factors associated with persistent placenta previa. Placenta. 2020;99:189–92.
[11]. Ozdemirci S, Akpinar F, Baser E, Bilge M, Unlubilgin E, Yucel A, et al. Effect of the delivery way and number of

parity in the subsequent incidence of placenta previa. J Matern neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet. 2020 Oct;33(19):3238–43.
[12]. Kuribayashi M, Tsuda H, Ito Y, Tezuka A, Ando T, Tamakoshi K, et al. Evaluation of the risk factors for antepartum hemorrhage in cases of placenta previa: a retrospective cohort study. J Int Med Res. 2021 Nov;49(11):3000605 211054706.
[13]. Heena AB, Kumari G. Retrospective study of placenta accreta, placenta increta and placenta percreta in Peripartum hysterectomy specimens. Indian J Pathol Microbiol. 2020 Feb;63(Supplement):S87–90.
[14]. Romeo V, Verde F, Sarno L, Migliorini S, Petretta M, Mainenti PP, et al. Prediction of placenta accreta spectrum in patients with placenta previa using clinical risk factors, ultrasound and magnetic resonance imaging findings. Radiol Med. 2021;126(9):1216–25.
[15]. Martimucci K, Bilinski R, Perez AM, Kuhn T, Al-Khan A, Alvarez-Perez JR. Interpregnancy interval and abnormally invasive placentation. Acta Obstet Gynecol Scand. 2019 Feb;98(2):183–7.
[16]. Cunningham FG; et al, Cunningham FG; Leveno KJ; Bloom SL; et al, F. Gary Cunningham, Kenneth J. Leveno, Steven L. Bloom, Catherine Y. Spong, Jodi S. Dashe BLH. Williams Obstetri. 25th ed. New York: The McGraw-Hill Companies; 2020.
[17]. Frah AMA. The Association of Placenta Previa withCesarean Delivery Using Ultrasound. Sudan University of Science and Technology; 2016.
[18]. Rac MWF, Dashe JS, Wells CE, Moschos E, McIntire DD, Twickler DM. Ultrasound predictors of placental invasion: the Placenta Accreta Index. Am J Obstet Gynecol. 2015 Mar;212(3):343.e1-7.
[19]. Iacovelli A, Liberati M, Khalil A, Timor-Trisch I, Leombroni M, Buca D, et al. Risk factors for abnormally invasive placenta: a systematic review and meta-analysis. J Matern neonatal Med Off J Eur Assoc Perinat Med Fed Asia Ocean Perinat Soc Int Soc Perinat Obstet. 2020 Feb;33(3):471–81.
[20]. Cochrane E, Pando C, Kirschen GW, Soucier D, Fuchs A, Garry DJ. Assisted reproductive technologies (ART) and placental abnormalities. J Perinat Med. 2020 Oct;48(8):825–8.
[21]. Dai J, Shi Y, Wu Y, Guo L, Lu D, Chen Y, et al. The interaction between age and parity on adverse pregnancy and neonatal outcomes. Front Med. 2023;10:1056064.