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COMPARISON OF 150 MG VERSUS 75 MG ASPIRIN STARTING BETWEEN 11 AND 14 WEEKS OF PREGNANCY IN PATIENTS WITH HIGH RISK OF PREECLAMPSIA.

Obstetrics & Gynecology

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ABSTRACT

Introduction Around 5-10% of pregnancies worldwide are complicated by hypertensive disorders of pregnancy, which coupled with haemorrhage and infection form the lethal trio that significantly increases the risk of maternal death and morbidity. Targets and Goals to compare the differences in maternal outcomes between pregnant women who were deemed to be at high risk of PE and those who took 75 mg of aspirin versus 150 mg of aspirin. **Methodology** This two-armed double-blind parallel randomised control experiment was carried out during a six-month period in the Department of Obstetrics in Muzaffanagar medical college,Muzaffarnagar. **Result** In the 75 mg aspirin group, preeclampsia affected 9 out of 50 (18%) in compared to 4 out of 50 (8%) in the 150 mg aspirin group. The incidence of PE, its severity, and gestational age at delivery were all significantly greater in the 75-mg group than in the 150-mg group. Significantly greater values in both groups, preeclampsia patients' mean arterial pressure and uterine artery PI were compared to controls. **Conclusion** This randomised trial demonstrated that aspirin 150 mg per day, started between 11 and 14 weeks until 36 weeks, is a potent intervention to reduce the development of both early-onset and late-onset preeclampsia in women with singleton pregnancies who were identified by first-trimester screening as being at high risk of preterm preeclampsia.

KEYWORDS

INTRODUCTION

Preeclampsia is a multiorgan pregnancy condition that is typically identified by proteinuria and hypertension once the pregnancy has progressed to 20 weeks. A systolic blood pressure of 140 mmHg or higher and a diastolic blood pressure of 90 mmHg or higher in two separate tests taken at least 4-6 hours apart are considered to be signs of hypertension in pregnancy. [1]2-8% of pregnancies are affected by pre-eclampsia (PE). It ranks among the major factors in maternal fatalities [2]. PE also raises the risk of cardiovascular disease in both women and children. [3,4]

Complications are more frequent when a disease has an early onset and a high severity that requires delivery prior to 37 weeks of gestation. According to several studies, a dysfunctional placentation is the root cause of preeclampsia and, to a lesser extent, foetal development restriction. It has been discovered that a combination of maternal demographic factors, such as medical and obstetric history, uterine artery pulsatility index (PI), mean arterial pressure (MAP), at 11–13 weeks of gestation, and serum markers, can identify a significant portion of pregnancies with a high risk of preterm PE [5–9].

In a more recent meta-analysis of randomised studies, low-dose aspirin treatment starting at or before 16 weeks was discovered to be related with a 50% reduction in the overall risk of PE [10,11].

The American College of Obstetricians and Gynecologists (ACOG) currently recommends a low-dose aspirin prophylactic for women who are at high risk of preeclampsia as well as those who have multiple moderate preeclampsia risk factors [12,13].

The Aspirin for Evidence-based Preeclampsia Prevention (ASPIRE) trial has demonstrated that a daily dose of 150 mg of aspirin, started before 16 weeks of gestational age and taken at night, lowers the incidence of abruption in a high-risk group identified by a combined first-trimester screening test.

MATERIAL & METHODS

Study design:
Two-armed double-blind parallel randomized control trial Study place Department of Obstetrics and Gynaecology in Muzaffarnagar medical college

Study population:
The pregnant women attending the outpatient department between 11 and 14 weeks of gestational age and meeting the inclusion criteria were enrolled in the study after written informed consent.

Study duration: The study was carried out over a period of 6 months.

Sample size: 100

Selection of patients:

Inclusion Criteria

1) Antenatal patients with a high risk of preeclampsia.
3) History of preeclampsia, pt of chronic HTN, positive family history of any underlying vascular disease, gestational diabetes mellitus, or maternal age of < 20 years or > 40 years.

Exclusion Criteria

Allergies to aspirin, other ingredients, or salicylates in prescribed drugs; history of asthma caused by salicylates or non-steroidal anti-inflammatory drugs; active peptic ulcer, chronic renal failure; chronic liver failure; chronic heart failure or in combination with methotrexate (15 mg/week or more).

METHODOLOGY

All women were questioned regarding their prior obstetric history, pre-pregnancy weight, and preeclampsia history. Women's heights and weights were noted. For each arm while the subject was seated, the mean arterial pressure was computed. For all recruited women between 11 and 14 weeks, a transvaginal ultrasound was performed, and measurements of the crown-rump length and the bilateral uterine artery PI were made. These women were divided into two groups after enrollment, with one getting 150 mg of aspirin daily at bedtime and the other 75 mg, according to a computer-generated random number table. Starting at enrollment and continuing for 36 weeks, each patient was told to take one capsule before bed. Patients were monitored until birth, and the results were documented.

RESULTS

Table 1:Characteristics of included women in the trial:

	150mg aspirin	75mg aspirin
Gestational age (median) (crown-rump length mm)	62.4%	62.3%
Age (mean±SD)	28.3±4.8	27.6±5.3
Body mass index (mean±SD)	24.6±3.6	25.2±4.0
Obstetric history a)Nullipara	36(72%)	32(64%)
b)Multipara without PE	5(10%)	6(12%)
C)Multipara with PE	9(18%)	12(24%)
Method of Conception a)spontaneous	47(94%)	45(90%)
b)Ovulation induction	2(4%)	1(2%)
c)IVF	1(2%)	4(8%)

Table 2:Comparison of the development of pre-eclampsia & other complications:

OUTCOMES	75 MG ASPIRIN	150 MG ASPIRIN
Development of preeclampsia	9(18%)	4 (8%)
Early onset preeclampsia	3 (6%)	1 (2%)
Severe PE	6 12%	2(4%)
Severe PE a)Thrombocytopenia	1(2%)	0
b)BP>160/110 mm hg	2 (4%)	1 (2%)
c)HEELP s/o	1(2%)	0
d) Pulmonary edema	2(4%)	1 (2%)
Mean POG at the time of delivery	36.4	37.2
Placental Abruption	3(6%)	2 (4%)

Table 3:Maternal high-risk factors in women who developed PE:

	75 MG ASPIRIN	150 MG ASPIRIN
Hypothyroidism	3(6%)	4 (8%)
APLA	2 (4%)	1 (2%)
Autoimmune ds	2 (4%)	1 (2%)
GDM	4 (8%)	3(6%)
Type 2 diabetes	2 (4%)	1 (2%)
Chronic hypertension	3 (6%)	1(2%)
Mean arterial pressure	99.87±8.36	102.5±5.24
Uterine artery PI	2.66±0.48	2.84±0.32
History of early-onset preeclampsia in a previous pregnancy	2(4%)	1 (2%)
History of late-onset PE in a previous pregnancy	4 (8%)	3 (6%)

DISCUSSION

Preeclampsia is diagnosed at fewer than 37 weeks of pregnancy at a rate of 33% based on maternal characteristics; however, if uterine artery PI and mean arterial pressure are additionally considered, the incidence jumps to 72% [14].

According to a study by Ebrashy et al. [15] on 139 women, Uterine artery doppler at 11–14 weeks can detect preeclampsia in individuals who are at high risk for the condition. One arm began receiving 75 mg of aspirin, while the other received a placebo. Aspirin users had a 35% preeclampsia incidence rate and a 7.7% severe PE incidence rate. Among the 50 women who received 150 mg of aspirin in this trial, the incidence of PE was 8%, early-onset PE was 2%, and severe PE was 4%. The study by Ebrashy et al. revealed a considerably greater incidence of PE and severe PE in the control group. This demonstrates that 75 mg of aspirin is likewise beneficial, but the effectiveness in 18% of the women who took 75 mg of aspirin and 8% of the women who received 150 mg of aspirin, preeclampsia manifested itself. There was a significant group difference between the mean gestational age at birth and the occurrence of severe PE (4% vs. 12%).

According to a research by Plasencia et al. [5], the detection rates of early-onset and late-onset preeclampsia were 90.9 and 31.0%, respectively. They discovered that the change in uterine artery PI between 11+0 to 13+6 weeks of pregnancy and 21+0 to 24+6 weeks of pregnancy contributed significantly and independently to the prediction of preeclampsia. Almost all of the pregnant women had a PI value greater than 2.5, regardless of the precise time between 11 and 14 weeks into the pregnancy.

In a study by Poon [14], they demonstrated the effectiveness of preeclampsia (PE) screening using the mother's medical history and mean arterial pressure between 11 weeks and 13 weeks 6 days. The BMI, ethnicity, and personal history of PE all had an impact on the mean arterial pressure. [7]. In our study, we also found that women who got PE had greater baseline mean arterial pressure than women who did not.

In a meta-analysis of 34 RCTs, Bujold [10] reported that the control group had higher rates of preeclampsia (9.3 vs. 21.3%), severe PE (0.7 vs. 15%), FGR (7 vs. 16%), gestational high blood pressure (16.7 vs. 29.7%), and preterm birth (3.5 vs. 16.9%).

Aspirin use during pregnancy is associated with a dose-response effect (50-150 mg), with higher dosage having a better effect on preventing preeclampsia (p on the risk of preeclampsia, severe preeclampsia, and foetal growth restriction). Stephanie Roberge [17] conducted a meta-analysis of 45 randomised controlled trials, comparing the effect of daily aspirin in various doses or placebo during pregnancy. The main emphasis is now on identifying preeclampsia-prone women early and initiating low-dose aspirin, preferably before 16 weeks.

CONCLUSION

In a developing nation like India, both preeclampsia and eclampsia are common. Hypertensive diseases cause maternal mortality, thus there may be benefits.Early detection and action are clear-cut and admirable.This randomised trial demonstrated that use of aspirin 150 mg per day, started between 11 and 14 weeks until 36 weeks, is a potent intervention to reduce the development of both early- and late-onset preeclampsia as compared to a dose of 75 mg per day, among women with singleton pregnancies who were identified by first-trimester screening as being at high risk of preterm preeclampsia. Additionally, the experiment demonstrated that screening by history and mean arterial pressure can be particularly beneficial in resource-limited settings where the availability of biomarkers for identifying women at high risk of preeclampsia is severely curtailed.

REFERENCES:

1. Kattah AG, Garovic VD. The management of hypertension in pregnancy. Adv Chronic Kidney Dis. 2013;20:229–39. doi:10. 1053/j.ackd.2013.01.014.
2. Duley L. The global impact of pre-eclampsia and eclampsia. Semin Perinatol 2009;33(3):130–7.
3. [2] Brown MC, Best KE, Pearce MS, Waugh J, Robson SC, Bell R. Cardiovascular disease risk in women with pre-eclampsia: systematic review and meta-analysis. Eur J Epidemiol 2013;28(1):1–19.
4. Davis EF, Lazdam M, Lewandowski AJ, Worton SA, Kelly B, Kenworthy Y, et al. Cardiovascular risk factors in children and young adults born to preeclamptic pregnancies: a systematic review. Pediatrics 2012;129(6) e1552-e61.
5. Plasencia W, Maiz N, Bonino S, et al. Uterine artery Doppler at 11+0 to 13+6 weeks in the prediction of pre-eclampsia. Ultrasound Obstet Gynecol. 2007;30:742–9.
6. Yu CKH, Khouri O, Onwudiwe N, et al. Prediction of pre-eclampsia by uterine artery Doppler imaging: relationship to gestational age at delivery and small for gestational age. Ultrasound Obstet Gynecol. 2008;31:310–3.
7. Walsh CA, Bakshi LV. Mean arterial pressure and prediction of pre-eclampsia. Br Med J. 2008;336(7653):1079–80
8. Akolekar R, Syngelaki A, Sarquis R, et al. Prediction of early, intermediate and late preeclampsia from maternal factors, biophysical and biochemical markers at 11–13 weeks. Prenat Diagn. 2011;31:66–74.
9. Goetzinger KRG, Singla A, Gerkowicz S, et al. Predicting the risk of pre-eclampsia between 11 and 13 weeks gestation by combining maternal characteristics and serum analytes, PAPP-A and free β-Hcg. Prenat Diagn. 2010;30(12–13):1138–42
10. Bujold E, Roberge S, Lacasse Y, et al. Prevention of preeclampsia and intrauterine growth restriction with aspirin started in early pregnancy: a meta-analysis. Obstet Gynecol. 2010;116:402–14.
11. Roberge S, Villa P, Nicolaides K, et al. Early administration of low-dose aspirin for the prevention of preterm and term preeclampsia: a systematic review and meta-analysis. Fetal Diagn Ther. 2012;31:141–6
12. Bulletins ACoP. ACOG Practice Bulletin No. 202 ACOG, The American Journal of Obstetrics and Gynecology2019. Available from: www.acog.org/Womens-Health/Preeclampsia-and-Hypertension-inPregnancy?IsMobileSet = false#Providers.
13. Force USPS. Final Update Summary: Low-Dose Aspirin Use for the Prevention of Morbidity and Mortality From Preeclampsia: Preventive Medication U.S. Preventative Services Task Force2016. Available from: https://www. uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/lowdose-aspirin-use-for-the-prevention-of-morbidity-and-mortality-from-preeclampsia-preventive medication
14. Poon LC, Syngelaki A, Akolekar R, et al. Combined screening for preeclampsia and small for gestational age at 11–13 weeks. Fetal Diagn Ther. 2013;33:16–27.
15. Ebrashy A, Ibrahim M, Marzook A, et al. Usefulness of aspirin therapy in high-risk pregnant women with abnormal uterine artery doppler ultrasound at 14–16 weeks pregnancy: a randomized controlled clinical trial. Croat Med J. 2005;46(5):826–31.
16. Poon LCY, Nikos A, Kametas NA, et al. Mean arterial pressure at 110 to 136 weeks in the prediction of preeclampsia. Hypertension. 2008;51:1027–33
17. Roberge S, Nicolaides K, Demers S, et al. The role of aspirin dose on the prevention of preeclampsia and fetal growth restriction: systematic review and meta-analysis. Am J Obstet Gynecol. 2017;216(2):110–20