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ORIGINAL ARTICLE

Frequency of Pre-Eclampsia in High-Risk Pregnant Women Treated with Low Dose Aspirin (LDA) Presenting in Tertiary Care Hospital

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ABSTRACT

Objective: To determine the frequency of pre-eclampsia among high-risk pregnant women treated with low dose aspirin (LDA) presenting in a tertiary care hospital.
Study design: Descriptive study
Duration of study: Six months from 20-02-2018 to 19-08-2018.
Setting: Study was conducted in OPD of Obstetrics and Gynaecology Department, Combined Military Hospital, Lahore National University of Medical Sciences NUMS
Material and methods: A total of 175 patients were included in the study. Pregnant females diagnosed as high risk were treated with low dose aspirin (75 mg) daily started at 12 to 16 weeks of gestation till the end of pregnancy. 24 hours urine protein test was done for patients with B.P. >140/90mmHg after 20 weeks of gestation and if at least 300mg protein was present in 24 hours urine then patient was labeled as pre-eclamptic.
Results: Patients ranged between 20-35 years of age with mean age of 25.9±3.6 years. Mean gestational age was 14.4±1.1 weeks and mean BMI was 27.3±4.3 kg/m2. Pre-eclampsia developed in 27 patients (15.4%). Obesity found in 53 patients (30.3%). There were 27 (15.4%) primigravida and 148 (84.6%) multigravida patients.
Conclusion: In conclusion, low dose aspirin is effective in prevention of preeclampsia in high-risk patients. Indications for aspirin in primary prevention are a matter of debate, but recent publications suggest a strategy based on first-trimester screening of preeclampsia (with clinical parameters, biomarkers and uterine artery Doppler measurements) and aspirin administration to high-risk patients.
Keywords: Aspirin, High risk pregnancy, Pre-eclampsia

INTRODUCTION

The most difficult pregnancy medical condition to treat is pre-eclampsia[1] is the leading cause of perinatal mortality and morbidity, affecting 2% to 8% of all births globally, with the majority of cases happening in underdeveloped nations.[2] Due to hypoproteinemia, inadequate nutrition, and a lack of appropriate obstetric care, this condition manifests after 20 weeks of gestation with a high incidence in poorer nations. Pre-eclampsia and eclampsia are associated with about 10-15% of maternal fatalities.[3]

The majority of the time, the cause is unknown, but the most frequent association is placental insufficiency brought on by an early onset of a placental anomaly. Pre-clinical eclampsia's manifestation comes next after this early placental anomaly. In turn, this results in endothelial dysfunction, which can result in vasoconstriction, organ damage, and an increase in vascular permeability. The majority of women with mild illness don't exhibit any symptoms. Patients with very high blood pressure or severe pre-eclampsia may exhibit headache, right upper abdomen or epigastric pain, or blurred vision symptoms.[4] Aspirin (acetylsalicylic acid), an antiplatelet medication, is one of the most often used medications to prevent pre-eclampsia. They play a part in maintaining the equilibrium between thromboxane, a vasoconstrictor, and prostacyclin, a vasodilator, as well as in platelet aggregation. The probability of trophoblast invasion is also decreased, which lowers the likelihood that the condition will progress.[5]

Women at high risk for pre-eclampsia are advised to take preventive low dosage aspirin (75 mg) before 20 weeks of pregnancy.[6] Antiplatelet medications, such as low dose aspirin, are used all over the world since it has been proven in numerous studies that they can lower the incidence of pre-eclampsia and gestational hypertension in high-risk women when used as a preventative measure.[6]

Several studies in which McParland examined the impact of low dosage aspirin on pre-eclampsia in 48 high risk pregnant women were included in a systematic review. He discovered that just 1 of these women, or 2.1%, had pre-eclampsia frequently.[7] However, another study found that in high-risk women (396/5025, 7.9%), low dose aspirin did not reduce the incidence of pre-eclampsia.[8]

However, results reported by Buold et al [9] shown that 9.3% of patients using low dose aspirin had pre-eclampsia. They came to the conclusion that starting low-dose aspirin during pregnancy is an effective way to lower the occurrence of pre-eclampsia.

Villa et al included 61 high risk pregnant women in his study and observed the frequency of pre-eclampsia in 8 (13.1%).[1] Atarod et al revealed that patients on low dose aspirin had a pre-eclampsia prevalence of 9.3%. They came to the conclusion that using low-dose aspirin beginning during pregnancy is a reliable way to lower the risk of developing pre-eclampsia.

With studies demonstrating variability in pre-eclampsia percentages ranging from 2.1% to 35%, the goal of this study was to determine the frequency of pre-eclampsia among high risk pregnant women treated with low dose aspirin.[7,11] Additionally, numerous randomised studies found disparities in the use of aspirin, yet some have demonstrated important clinical advantages. 7,10 other people haven't [8,11]. We conducted the current study in our population to provide exact evidence for or against prophylactic low dose aspirin in the prevention of pre-eclampsia. I aimed to produce outcomes by treating high-risk patients with low dose aspirin to prevent complications of pre-eclampsia in mothers and newborns because there was no local data to emphasise the incidence of the condition.

MATERIAL AND METHODS

This descriptive Study was conducted in OPD of Obstetrics and Gynaecology Department, Combined Military Hospital, Lahore National University of Medical Sciences NUMS over a period of six months from 20-02-2018 to 19-08-2018.

A total of 175 patients between the age of 20-35 years, primigravida and multigravida with any parity, singleton pregnancy of gestational age between 12 to 16 weeks (confirmed on Ultrasound), high risk patients with one or more of the following conditions with gestational diabetes (BSR >200mg/dl), pregnancy induced hypertension, antiphospholipid antibody syndrome i.e. APLA screen ratio > 1.2 and a percentage correction ratio > 10%

and with previous history of preeclampsia were selected. Patients sensitive to aspirin assessed on history, those with diagnosed liver diseases and with other type of hemoglobinopathies and multiple pregnancy assessed on USG were excluded from study.

Study was approved by the ethical review committee and written informed consent was obtained from the pregnant women who were willing to participate in the study and the details regarding the socio-demographic characteristics i.e. age, gravidity, parity, previous history of pre-eclampsia and obstetric history was obtained on a structured proforma by using interview method. Pregnant females diagnosed with high risk were treated with the low dose of aspirin (75 mg) daily started at 12 to 16 weeks of gestation till the end of pregnancy. Patients were followed up till delivery for all of the routine prenatal examinations, blood pressure and urinary protein excretion. Serial growth scans were performed for assessment of the growth of the fetus. 24 hours urine protein test was done for each patient after 20 weeks of gestation and if at least 300mg protein present in sample along with B.P. >140/ 90mmHg then patient was labelled as pre-eclamptic. Patients were followed up by researcher herself and patients who did not take their daily dose, as well as those who were not present at periodic visits for follow-up, were excluded from the study. All this information were recorded on a pre-designed proforma attached. Patients developing pre-eclampsia or any other complication were managed according to standard protocols.

Data was entered on computer software SPSS version 20. Quantitative data like age, gestational age and BMI was presented by mean and standard deviation while qualitative data like presence of preeclampsia, obesity was presented by frequency and percentages. Frequency was calculated for parity. Data was stratified for the variables i.e., Maternal age, gestational age, primigravida and multigravida, BMI (<30kg/m^2, ≥ 30kg/m^2) and type of high-risk disease to address the effect modifier. Post stratification Chi Square test was applied to check the significance with p value ≤0.05 taken as statistically significant.

RESULTS

Patients ranged between 20-35 years of age with mean age of 25.9±3.6 years. Mean gestational age was 14.4±1.1 weeks, mean BMI was 27.3±4.3 kg/m^2. Among 175 patients, majority of the patients were in age group 20-25 years and few numbers of patients were in age group 31-35 years (Table I). 93 patients had gestational age 12-14 weeks (Table II). 53 patients had BMI <30kg/m^2(30.3%) while 122 patients had BMI > 30kg/m^2 (69.7%). Pre-eclampsia developed in 27 patients (15.4%) with no pre-eclampsia in 148(84.6%) patients. There were 27 (15.4%) primigravida and 148 (84.6%) were multigravidas. Stratification with regard to age, gestational age, BMI and parity was also carried.

Table-1: Stratification for age (Year)

Age	Pre-eclampsia		Total	P value
	Yes	No		
20-25	9	77	86	0.169
26-30	15	55	70	
31-35	3	16	19	
Total	27	148	175	

Table-2: Stratification for gestational age (weeks)

Gestational age (weeks)	Pre-eclampsia		Total	P value
	Yes	No		
12-14	13	80	93	0.572
15-16	14	68	82	
Total	27	148	175	

Table-3: Stratification for parity

Parity	Pre-eclampsia		Total	P value
	Yes	No		
Primigravida	3	24	27	0.499
Multigravida	24	124	148	
Total	27	148	175	

Stratification of efficacy with respect to BMI was analyzed. With BMI<30kg/m^2 pre-eclampsia developed in 18 patients (14.75%) with efficacy found in 104 (85.2%) patients. With BMI>30kg/m^2 Pre-eclampsia developed in 9 patients (16.9%) with efficacy found in 44 (83%) patients with p value 0.708. Stratification of efficacy with respect to parity was shown in table III.

DISCUSSION

Globally, 2.5% to 7.6% pregnant women suffered from PE and it had significant association with perinatal mortality and morbidity.[12-16] The risk of pre-eclampsia has been consistently and somewhat decreased by aspirin and other antiplatelet medications in recent meta-analyses. In the meta-analysis of 32217 moms from the Paris collaboration [5] Among women receiving antiplatelet medications compared to control women, the relative risk of pre-eclampsia was 0.9. The authors advised women at high risk of pre-eclampsia to take low-dose aspirin in the early stages of pregnancy, despite the fact that this reduction was insufficient to justify management for all the pregnant females. On the basis of the literature study, defined standards for a high-risk group, however, could not be established. In a Cochrane review, PE was reduced by 17% with use of low dose aspirin. [17]

In one meta-analysis, it was noted that for the PE prevention, LDA had marginal effect in pregnant females with high risk.[18] In a Chinese study, PE was reduced by 20% in control group while 16% in intervention group.[19]

In present study, frequency of pre-eclampsia among high-risk pregnant women treated with low dose aspirin was found to be 15.4%. The results of our study, together with the results of the Villa et al[1] are in agreement with previous suggestions that aspirin in prevention of pre-eclampsia should be started in early gestation before the second active phase of trophoblast invasion which takes place from 14 weeks of gestation onwards.

CONCLUSION

In conclusion, low doses of aspirin is effective in prevention of preeclampsia in high-risk patients. Indications for aspirin in primary prevention are a matter of debate, but recent publications suggest a strategy based on first-trimester screening for preeclampsia (with clinical parameters, biomarkers and uterine Doppler measurements) and aspirin administration to high-risk patients.

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