

Relationship between Maternal Age and Preeclampsia.

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Abstract

Background: As for early prediction of preeclampsia along with other parameter age is also recommended, so the purpose of this study was to show any relationship if exists between maternal age and preeclampsia.

Aim: To find out whether the maternal age can be used to predict the development of preeclampsia.

Objective: To study what age group is more prone for development of preeclampsia in normal pregnancies.

Methodology: 220 pregnant women were included in study after proper consent.

Result: Data shows that P-value at 95 % of CI shows significant difference and also the χ^2 -value at degree of freedom 1 shows significant difference in reference to age because table value of χ^2 at 95 % of CI is 3.84 but calculated value is 5.83 which are very greater. So, we state that the population distribution for preeclampsia and Non-preeclampsia are heteroscedastic in reference to age. That is different population group were affected with preeclampsia in comparison to non-preeclampsia.

Discussion: Age is somehow related to preeclampsia.

Keyword: Maternal age, preeclampsia.

I. Introduction

Pre-eclampsia (PE) is a pregnancy specific, multisystem syndrome characterized by reduced organ perfusion secondary to vasospasm and activation of the coagulation cascade.¹ It is a major cause of preterm birth and an early marker for future cardiovascular and metabolic diseases. Although pathophysiological changes like inadequate placentation exist from very early stages of the pregnancy, hypertension and proteinuria usually become apparent in the second half of pregnancy. Symptoms of PE includes hypertension, proteinuria along with Oedema, Sudden weight gain (more than five pounds in a week), Headache, Nausea or vomiting, especially suddenly, after mid pregnancy (not the morning sickness that many women experience in early pregnancy), Abdominal pain (epigastric or in upper right quadrant region - usually under the ribs), Changes in vision (like seeing spots or flashing lights; blurred vision, partial or total loss of eyesight), difficulty in breathing and hyperreflexia.²

Severe hypertension, hyperreflexia, headache (increasing frequency, unrelieved by regular analgesics), clouding of vision, oliguria (passing less than 400ml urine in 24 hours), upper abdominal pain (epigastric pain or pain in right upper quadrant), pulmonary oedema (difficulty in breathing) are the signs of severe PE.²

In the UK, the National Collaborating centre for women's and children's health has issued guidelines on routine prenatal care recommending that at the first visit a woman's level of risk for PE should be evaluated, by a series of maternal characteristics, such as maternal age, body mass index and previous and family history of PE, so that a plan for her schedule of prenatal visits can be formulated.³

So, the purpose of our study was to show the relationship if exists between maternal age and chances of risk of PE to help in early detection of PE.

Aim: To find out whether the maternal age can be used to predict the development of preeclampsia.

Objective: To study what age group is more prone for development of preeclampsia in normal pregnancies.

II. Methodology

This prospective study was conducted at BGH Jharkhand, India after approval of hospital ethical committee. After screening, this study was conducted on 220 patients who give written consent for use of data.

After taking demographic details, every participant's evaluation was done accordingly the recommended guidelines. All population under study were followed up regularly. Patient who were unable for regular antenatal clinic visit were said for home based blood pressure monitoring.

III. Results

Table 1: Showing age wise distribution of women with and without PE

Age group	PE	Non-PE	Total
	No. of pregnant women	No. of pregnant women	No. of pregnant women
15 < 20	23	18	41
20 < 25	27	39	66
25 < 30	24	35	59
30 < 35	15	19	34
35 < 40	15	05	20
Total	104	116	220
Mean ± SD	26.15 ± 6.71	25.52 ± 5.32	25.83 ± 6.01
Min - Max	17-38	16-38	16-38
d.f.	1		
F-Statistics	0.60		
p-value	0.01		
χ^2 -value	5.83		

For comparing age wise distribution of pregnant women with PE and Non-PE we used ANOVA statistical tools. The above table 1 shows that both groups mean age along with S.D. is unequal. P-value at 95 % of CI shows significant difference and also the χ^2 -value at degree of freedom 1 shows significant difference in reference to age because table value of χ^2 at 95 % of CI is 3.84 but calculated value is 5.83 which is very greater. So, we state that the population distribution for PE and Non-PE are heteroscedastic in reference to age.

IV. Discussion

Age has an important influence on the incidence of hypertensive disorders of pregnancy. As reported by Zibaenazhad et al. young primigravidae less than 20 years and all patients over 30 years have an increased chance of hypertension.⁴ Sheraz et al. also reported the same finding and stated that PE is more frequent in patients younger than 21 years of age and in older than 35 year.⁵

Our study also shows that there is significant difference of age between patients with developing PE and not developing PE.

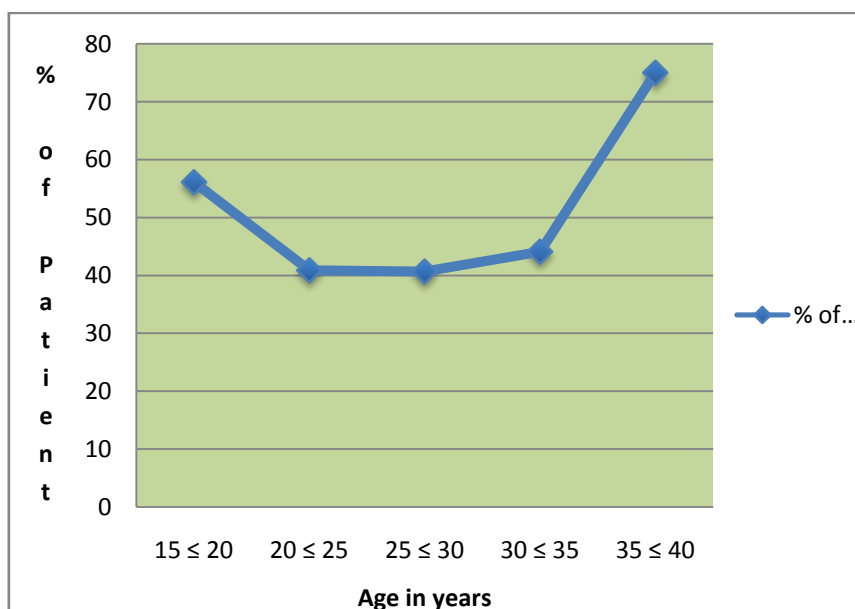


Fig 1: Showing trend of preeclampsia with advancing age.

As shown in above figure 1, when comparing patient's age below 20 years, PE developed in 56.10 % , however between age 20-30 years PE developed in 40.00% (Approx) of patient but after 30 years of age rate of development of PE shows positive correlation with progression of age. This graph shows a roughly J- pattern of relationship between maternal age and development of PE.

Kumar et al. documented that pregnant women of age less than 20 year were 3.87 times at risk of developing pre-eclampsia compared to age of more than 20year.⁶ Similar observation was also reported by Duckitt et al. who observed teenage pregnancy to be one of the risk factors for PIH & eclampsia.⁷ Our study also shows that in both group that is patients with either central or lateral location of placenta, almost similar age group was affected with PE.

Sajith et al. also reported that highest incidence of hypertension in pregnant women was occurred in age group of 18-22 years (41.3%).⁸

Factor influencing the development of PE before 20 years of age as reported by Walker may be due to initial trophoblastic invasion and how the mother reacts to it. The failure of the normal invasion of trophoblastic cells leads to mal adaptation of the spiral arterioles, which are related to the causation of pre-eclampsia.⁹

When we target the occurrence of PE in population of age more than 30 years, an important risk factor as reported by Duckitt et al. seems to be the increased villous reaction in woman greater than 30years may act as a contributing factor in development of PE.¹⁰

So, we conclude that teenage age group and after thirty years of age are more prone for development of PE. Between age 20 years to 30 years chance of development of PE in normal pregnancy is very less.

Conclusion: Maternal age below 20 years and above 30 years is more prone for development of preeclampsia.

Recommendation: From first visit a woman's level of risk for PE should be evaluated.

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