



Study on Impact of Maternal Age on Pregnancy Outcome at a Tertiary Care Hospital

Sandeep S, Shanthi E*

Department of Obstetrics and Gynecology, Saveetha Medical College and Hospital, Thandalam, Chennai, Tamil Nadu, India

Article History:

Received on: 04 Dec 2019
 Revised on: 19 Jan 2020
 Accepted on: 05 Mar 2020

Keywords:

Advanced maternal age,
 Birth weight,
 Maternal age,
 Obstetric outcome,
 Teenage pregnancy

ABSTRACT

This was a study to find a correlation between the maternal age and obstetric and fetal outcome. This was a retrospective study conducted at Saveetha Medical College and Hospital. The study groups were women delivering over 2 months. Data was collected from the parturition register in the Department of Obstetrics and Gynecology. The study group were divided into 5 groups from 1 to 5 based on age as, less than 20 years, 20-24 years, 25-29 years, 30-34 years and 35 years of age and above, respectively. The obstetric data collected were entered in micro soft excel sheet and analyzed. The total number of deliveries during the study period was 251. The average age of the woman delivered was 23.8 years. The percentage of women under different age groups were as follows: 2.79 % were teenagers and 2.79% of women were more than 35 years of age. 46.61%, 36.65% and 11.15 % were between 20-24 yrs, 25-29 years of age and 30 to 34 years of age. As age increased, gravidity increased. 71.43%, 45.61%, 39.65%, 11.5% and 28% were vaginal deliveries in each group. The proportion of caesarian deliveries increased as age advanced. In group one all were term deliveries, where as in other groups, the percentages were 76.92, 76.09, 75 and 71.42% respectively. The average weights of the babies were 2.6 kg, 2.868 kg, 2.873 kg, 2.841 kg and 2.8 kg, respectively. There were 14.28%, 23.93%, 34.78% and 25 % NICU admissions among the first 4 groups, respectively. There were 1.09%, 3.5% and 14.28% of intrauterine deaths in groups 3, 4 and 5, respectively. Majority of the study group belonged to 20-24 yrs. As maternal age increased, there was increase in gravidity, caesarean deliveries, increased preterm deliveries, neonatal admissions and intrauterine deaths.



*Corresponding Author

Name: Shanthi E
 Phone: 91 -9790963795
 Email: dreshanthi@gmail.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL2.2235>

Production and Hosted by

IJRPS | www.ijrps.com

© 2020 | All rights reserved.

INTRODUCTION

Outcome of a pregnancy is influenced by several factors. Among these maternal characteristics is considered to be one of the major determinants. It has long been recognized that maternal age influences the obstetric outcome. There are several studies evaluating obstetric and neonatal outcome over the full range of reproductive ages. Advanced maternal age (either defined as 35 years and older or 40 years and older) had increased placenta previa, abruptio placenta, caesarean delivery, preterm delivery, low birth weight, and increased perinatal mortality (Blomberg *et al.*, 2014; Hsieh *et al.*, 2010; Matsuda *et al.*, 2011).

Table 1: Maternal age and obstetric outcome

Characteristic	<20 years (NO= 7)	20-24 years (NO=117)	25-29 years (NO=92)	30-34 years (NO=28)	35 years and above (NO=7)
Gravidity					
1	6	69	38	6	-
2	1	32	33	16	2
3	-	16	13	3	4
4	-	-	8	3	1
Mode of delivery					
Normal vaginal delivery	5	50	35	4	2
Vacuum extraction	-	1	-	-	-
Outlet forceps delivery	-	2	1	-	-
Primary emergency caesarean	2	44	30	8	2
Primary elective caesarean	-		2		
Emergency repeat caesarean	-	12	14	10	1
Elective repeat caesarean	-	8	10	6	2

Table 2: Relationship between maternal age and mode of delivery

Mode of delivery	<20 years (NO= 7)	20-24 years (NO=117)	25-29 years (NO=92)	30-34 years (NO=28)	35 years and above (NO=7)
Vaginal delivery	5 (71.42%)	53(45.29%)	36 (39.13%)	4 (14.28%)	2 (28.57%)
Caesarean delivery	2 (28.57%)	64 (54.7%)	56 (60.86%)	24 (85.71%)	5(71.42%)

On the other hand, young mothers also have been exposed to an increased risk of anaemia, preterm birth low birth weight, fetal death, but more vaginal deliveries (Blomberg *et al.*, 2014; Gupta *et al.*, 2008). Hence pregnancy is considered to be high risk in these extremes of spectrum of age groups.

All these studies on the impact of maternal age on obstetric outcome differ in many aspects methodologically, socio demographic characteristics of the population and health care system over time. Study on impact of maternal age on obstetric outcome in Indian population will help in identifying the risk groups in our population and the knowledge be utilized in creating awareness among general population, health care providers and in improving the health care system. Hence this study was conducted.

MATERIALS AND METHODS

This was a retrospective study conducted at Saveetha Medical College and Hospital over 2 months in 2019. The study proposal was approved by the Institutional Review Board. The study groups were women delivering at this hospital during the study period. Data was collected from the parturition register in the Department of Obstetrics and Gynecology. The study groups were divided into 5 groups based on the age.

Group 1: less than 20 years of age

Group 2: 20-24 years of age

Group 3: 25-29 years of age

Group 4: 30-34 years of age

Group 5: 35 years of age and above.

The data collected included maternal age, obstetric history, mode of delivery, gestational age, APGAR

Table 3: Relationship between maternal age and neonatal outcome

Gestational age at delivery (weeks)	<20 years (NO= 7)	20-24 years (NO=117)	25-29 years (NO=92)	30-34 years (NO=28)	35 years and above (NO=7)
28-31.6	-	1	-	-	-
32-33.6	-	1	3	-	-
34-36.6	-	16	12	7	2
37-39.6	7	90	70	21	5
>=40	-	9	7	-	-
Birth weight (kg)					
<2	-	7	-	-	1
2- 2.49	2	14	9	6	1
2.5- 2.99	4	51	53	11	2
3-3.49	1	30	21	9	2
3.5-3.99		13	8	2	1
4 and above		2	1	-	-
Mean birth weight of baby (kg)	2.6	2.868	2.873	2.841	2.798
Intrauterine death	-	-	1	1	1
NICU admission	1	28	32	7	-

score, birth weight, NICU admission and were entered in micro soft excel sheet and analyzed.

RESULTS AND DISCUSSION

During the study period of two months, 251 deliveries had occurred. The average age of the woman under study was 23.6 years. This is similar to the study done in Indian population (Ushadevi and and, 2015). But it differs from studies done in China, where it was 28.4 years (Liu *et al.*, 2014; Wang *et al.*, 2017). The percentage of women under different age groups were as follows: 2.79 % were teenagers, 46.61% were between 20-24 years, 36.65% belonged to 25-29 years, 11.16% were between 30 to 34 years and 2.79% of women were more than 35 years (Advanced maternal age) (Table 1). Majority of mothers delivered were between 20-24 yrs (Group -2). This is different from the population of United states where the major group of women delivered belonged to the older age group, 25-29 years (Lisonkova *et al.*, 2017). But the proportion of teenage mothers and woman with advanced age were less in our study when compared to western population.

In our study population, in group 1 majority were primi gravida (85%). The proportion of mutigravida and the number of pregnancies also increased with

advancing age. This is consistent with other study results (Lisonkova *et al.*, 2017; Benli *et al.*, 2015; Cleary-Goldman *et al.*, 2005). Regarding the mode of delivery, 71.43% were vaginal deliveries in group1, where as in other groups, the rates were 45.61%, 39.65%, 11.5% and 28% (Table 2). The proportion of caesarian deliveries increased as age advanced. The results are consistent with several studies done in various populations.

As shown in (Table 3), all were term deliveries in group-1, where as in other groups, the percentages were 76.92%, 76.09%, 75% and 71.42%, respectively. The risk of preterm deliveries increased as the age advanced. This is in agreement with other study results (Cohen, 2014; Klemetti *et al.*, 2014). In our study in the teenage group, there were no preterm deliveries, which are in contrast to other studies (Vaughan *et al.*, 2014). The average weights of the babies were 2.6 kg, 2.868 kg, 2.873 kg, 2.841 kg and 2.789 kg, respectively. The observation that babies of teenage mothers weighed less than the babies of older mothers is similar to the findings of other studies (Ushadevi and and, 2015; Aras, 2013). There was not much difference in the average weight of the babies among other groups. In group 1, only 14% of babies weighed 3 kg and above, as against, 42.85% in group 5. There were 14.28%, 23.93%, 34.78% and 25 % NICU admissions among first 4

groups, respectively. There were no intrauterine deaths in first two groups. But there were 1.09%, 3.5% and 14.28% of intrauterine deaths in groups 3, 4 and 5, respectively. The finding that the risk of perinatal mortality increases with advancing maternal age is also seen in other studies (Cohen, 2014).

CONCLUSION

Childbirth at older age groups is associated with increased risk of caesarean deliveries, preterm births and perinatal mortality. Teenage pregnancy is associated with low birth weight babies but reduced caesarean deliveries. Awareness among women should be created about the planning of their pregnancies in their twenties to have a better obstetric outcome.

REFERENCES

- Aras, R. 2013. Is maternal age risk factor for low birth weight? *Archives of Medicine and Health Sciences*, 1:33-33.
- Benli, A. R., Benli, N. C., Usta, A. T., Atakul, T., Koroglu, M. 2015. Effect of Maternal Age on Pregnancy Outcome and Cesarean Delivery Rate. *Journal of Clinical Medicine Research*, 7(2):97-102.
- Blomberg, M., Tyrberg, R. B., Kjølhed, P. 2014. Impact of maternal age on obstetric and neonatal outcome with emphasis on primiparous adolescents and older women: a Swedish Medical Birth Register Study. *BMJ Open*, 4(11):e005840-e005840.
- Cleary-Goldman, J., Malone, F. D., Vidaver, J., Ball, R. H., Nyberg, D. A., Comstock, C. H., Saade, G. R., Eddleman, K. A., Klugman, S., Dugoff, L., Timor-Tritsch, I. E., Craigo, S. D., Carr, S. R., Wolfe, H. M., Bianchi, D. W., D'Alton, M. 2005. Impact of Maternal Age on Obstetric Outcome. *Obstetrics & Gynecology*, 105(5, Part 1):983-990.
- Cohen, W. 2014. Does maternal age affect pregnancy outcome? *BJOG: An International Journal of Obstetrics & Gynaecology*, 121(3):252-254.
- Gupta, N., Kiran, U., Bhal, K. 2008. Teenage pregnancies: Obstetric characteristics and outcome. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 137(2):165-171.
- Hsieh, T. T., Liou, J. D., Hsu, J. J., Lo, L. M., Chen, S. F., Hung, T. H. 2010. Advanced maternal age and adverse perinatal outcomes in an Asian population. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 148(1):21-26.
- Klemetti, R., Gissler, M., Sainio, S., Hemminki, E. 2014. Associations of maternal age with maternity care use and birth outcomes in primiparous women: a comparison of results in 1991 and 2008 in Finland. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121(3):356-362.
- Lisonkova, S., Potts, J., Muraca, G. M., Razaz, N., Sabr, Y., Chan, W.-S., Kramer, M. S. 2017. Maternal age and severe maternal morbidity: A population-based retrospective cohort study. *PLOS Medicine*, 14(5):e1002307-e1002307.
- Liu, X., Zou, L., Chen, Y., Ruan, Y., Liu, Y., W, Z. 2014. Effects of maternal age on pregnancy: a retrospective cohort study. 94:1984-1992.
- Matsuda, Y., Kawamichi, Y., Hayashi, K., Shiozaki, A., Satoh, S., Saito, S. 2011. Impact of maternal age on the incidence of obstetrical complications in Japan. *Journal of Obstetrics and Gynaecology Research*, 37(10):1409-1414.
- Ushadevi, G., and, S. A. R. 2015. Effect of maternal weight on fetal outcome. *International Journal of Medical Research and Review*, 3(6):614-617.
- Vaughan, D. A., Cleary, B. J., Murphy, D. J. 2014. Delivery outcomes for nulliparous women at the extremes of maternal age - a cohort study. *BJOG: An International Journal of Obstetrics & Gynaecology*, 121(3):261-268.
- Wang, C., Wang, X., Yang, H. 2017. Effect of maternal age on pregnancy outcomes in Beijing. *Zhonghua Fu Chan Ke Za Zhi*, 52(8):514-520.