

Original Research Article

Socio-demographic profile of the women with twin pregnancy in comparison with singleton pregnancy and to find effect of these factors with occurrence of twinning

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Abstract: Twin pregnancy is a high risk pregnancy. The Occurrence of twin varies with maternal age, parity, heredity, and race and infertility therapy. The present study was done to find association of socio-demographic profile of the women presenting with twin pregnancy and compared with woman with singleton pregnancy. This was a hospital base, prospective observational study done in the Department of Obstetrics and Gynaecology. The study population involved 150 pregnant women with twin pregnancies (cases) and 150 with singleton pregnancy (control) with gestational age of 28 weeks and above after obtaining written informed consent. All the necessary information regarding demographic data were collected and analysed. The mean age of women in cases 24.48±3.48 years while in control group mean age was 24.18±3.07. Majority of women in both the groups were Hindu, literate, booked and belonged to modified BG Prasad classification class IV. Difference in the two groups was statistically not significant. The difference in the dwelling was statistically significant (p value .00008). Mean gravidity was 2.01±1.07 in cases and 1.95±1.05 in control group and Mean parity was 0.81±1.02 in cases and 0.74±0.94 in control group. The difference in both the group according to gravidity and parity was statistically not significant (p value .725 and 0.777 respectively). 12 % women in cases, 4% women in control group conceived after ovulation induction. A weak positive linear regression correlation was seen between twinning and maternal age, gravidity and parity of the woman. Socio-demographic profile of the women with twin and singleton pregnancy did not differ significantly in our study. Significant difference was seen in residential status and gestational age. A weak positive linear regression correlation was seen between twinning and maternal age, gravidity and parity.

Keywords: Twin pregnancy, singleton pregnancy, socio-demographic profile, gestational age.

INTRODUCTION

Twin pregnancy is one in which two foetuses develop simultaneously in the uterus [1]. It commonly results from fertilization of two separate ova, dizygotic twins or from a single fertilized ovum that subsequently divides into two, monozygotic twins. Globally incidence of twin pregnancy is increasing. The incidence of monozygotic twins is uniform throughout the world as 3.5 per 1000 live births; whereas, the incidence of dizygotic twins varies between 4 and 50 per 1000 live births [2]. Worldwide, the highest incidence of multiple pregnancies has been found in sub-Saharan Africa. Twinning rate is 20 per 1,000 deliveries in sub-Saharan Africa, 10 per 1,000 deliveries in Europe and around 5-6 per 1,000 deliveries in Asia [3]. In India, twinning occurs in approximately 1% of pregnancies. The occurrence of twin varies with maternal age, parity, heredity, and race and infertility

therapy. Keeping this in mind the present study was done to find socio-demographic profile of the women presenting with twin pregnancy and compared with woman with singleton pregnancy as well as to find effect of these factors with occurrence of twinning.

MATERIAL AND METHODS:

This was a hospital base, prospective observational study done in the Department of Obstetrics and Gynaecology. S.M.S. Medical College, Jaipur from April 2015 to March 2016. The study population involved 150 pregnant women with twin pregnancies (cases) and 150 with singleton pregnancy (control) with gestational age of 28 weeks and above after obtaining written informed consent. The gestation age was determined by either dates from the first day of the last normal menstrual period or by extrapolations from early obstetric ultrasound or first visit found on the

antenatal card when reporting in labour ward. All the necessary information regarding demographic data were collected and analysed.

RESULT:

Occurrence of twinning in present study was 2.82%. Table 1 shows socio-demographic profile of the women. The mean age of women in cases 24.48±3.48 years with a range of 19-40 yrs while in control group mean age was is 24.18±3.07 with a range of 18-35 years. Difference in the age between the two groups was statistically not significant (p value .112) Majority of women (91.3% cases and 86.7% in control) were in the age group of 21-30 yrs. Majority of women in both the groups were Hindu, literate, booked and belonged to modified BG Prasad classification class IV. Difference in the two groups was statistically not significant.

58.6% women with twin pregnancy belonged to urban area while in control group 60.67% women were from rural area. The difference in the dwelling was statistically significant (p value .00008). Mean gravidity was 2.01±1.07 in cases and 1.95±1.05 in control group and the difference in both the group according to gravidity was statistically not significant (p value .725) Mean parity was 0.81±1.02 in cases and 0.74±0.94 in control group and there was no parity difference in both the group (P 0.777). 67.3% women with twin pregnancy had gestational age <37 weeks while only 24% women with singleton pregnancy had gestational age <37 weeks. Mean gestational age in twin group was 34.44 ± 2.86 weeks and in singleton group mean gestational age was 37.33 ± 2.07 weeks. The difference in both the groups was highly significant (p <0.00001)

Table 1: Socio-Demographic profile of the women

Variables	Cases		Control		P value
	No.	%	No.	%	
Age distribution					
≤ 20 years	6	4.0	15	10.0	X ² = 4.374 P 0.112 not significant
21-30 years	137	91.3	130	86.7	
31-40 years	7	4.7	5	3.3	
Religion					
Hindu	122	81.3	129	86.0	X ² = 1.1952 P 0.275 not significant
Muslim	28	18.7	21	14.0	
Residence					
Urban	88	58.7	59	39.3	X ² =11.2178 P 0.0008 Significant
Rural	62	41.3	91	60.7	
Literacy status					
Illiterate	63	42.0	69	46.0	X ² = 0.487 P 0.485 not significant
Literate	87	58.0	81	54.0	
Socioeconomic status					
Class I	0	0	0	0	X ² = 0.955 P 0.81 not significant
Class II	19	12.7	23	15.3	
Class III	54	36.0	52	34.7	
Class IV	67	44.7	68	45.3	
Class V	10	6.6	7	4.7	
Registration status					
Booked	92	61.3	96	64.0	X ² = 0.228 P 0.634 not significant
Unbooked	58	38.7	54	36.0	
Gravidity distribution					
Primigravida	61	40.7	64	42.7	X ² = 0.123 P 0.725 not significant
Multigravida	89	59.3	86	57.3	
Parity distribution					
Nulliparous	75	50.0	78	52.0	X ² = 0.08 P 0.777 not significant
Multiparous	75	50.0	72	48.0	
Gestational age					
28-32	43	28.6	5	3.3	X ² = 64.195 P <0.00001, Highly significant
33-37	58	38.7	31	20.7	
≥37	49	32.7	114	76.0	

Table 2 shows mode of conception. Majority of the women in both the groups conceived spontaneously. 12 % women in cases, 4% women in control group conceived after ovulation induction. 3 women in cases and 2 women in control group conceived after IUI. 3 women of cases, 1 woman in control group conceived after IVF treatment. The difference between the two groups was statistically significant (p value .04). Table 3 and Fig 1 show linear regression correlation between age of the women and

twinning. It showed technically a positive correlation but the relationship between age of the mother and twin was very weak. Table 4 and Fig 2 show the linear regression correlation between gravidity of the woman and twinning. The value of R is 0.0406 means a very weak positive correlation. Table 5 and Fig 3 show the linear regression correlation of maternal parity with twinning. The value of R is 0.0361. Although technically a positive correlation, the relationship between parity of the mother and twin is very weak.

Table 2: Distribution according to Mode of Conception

Mode of Conception	CASES		CONTROL		P value
	No.	%	No.	%	
Spontaneous	126	84.00	141	94.00	X ² =8.043 P value-.04 Significant
Ovulation Induction	18	12.00	6	4.00	
IUI	3	2.00	2	1.33	
IVF	3	2.00	1	0.67	
Total	150	100.00	150	100.00	

Table 3: Linear regression correlation of maternal age with twinning

N = 300	Mean ± SD	R	R square	Equation	P value
Age of mother	24.54 ± 3.32	0.0370	0.001373	Y = 0.005720*X + 1.361	0.52 Not significant
No of foetus	1.5 ± 0.50				

Table 4: Linear regression correlation of gravidity of mother with twinning

N = 300	Mean ± SD	R	R square	Equation	P value
Gravidity of mother	1.997 ± 1.07	0.0406	0.001652	Y = 0.01906*X + 1.462	0.48 Not significant
No of foetus	1.5 ± 0.50				

Table 5: Linear regression correlation of maternal parity with twinning

N = 300	Mean ± SD	R	R square	Equation	P value
Parity of the women	0.80 ± 0.99	0.0361	0.001378	Y = 0.01880*X + 1.485	0.52 Not significant
No of foetus	1.5 ± 0.50				

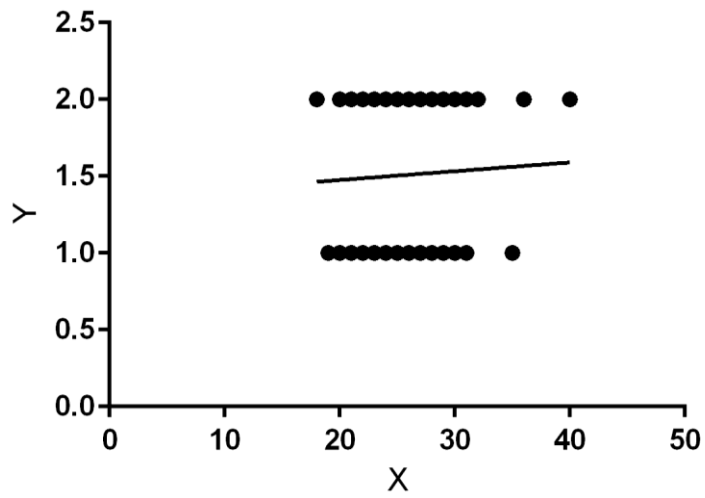


Fig 1: Linear regression correlation of maternal age with twinning

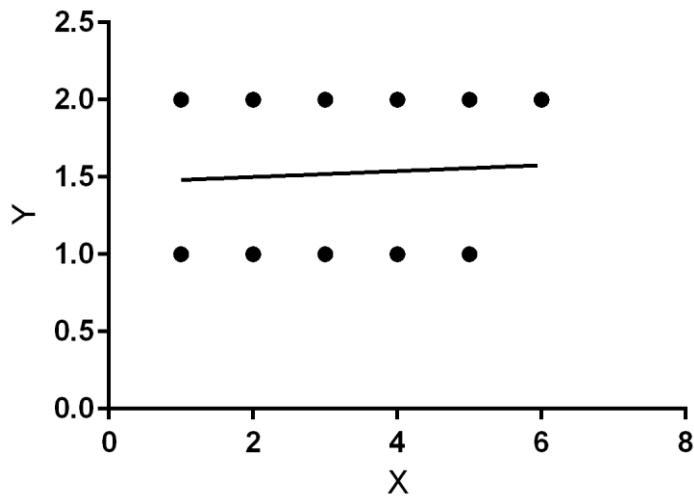


Fig 2: Linear regression correlation of gravidity of mother with twinning

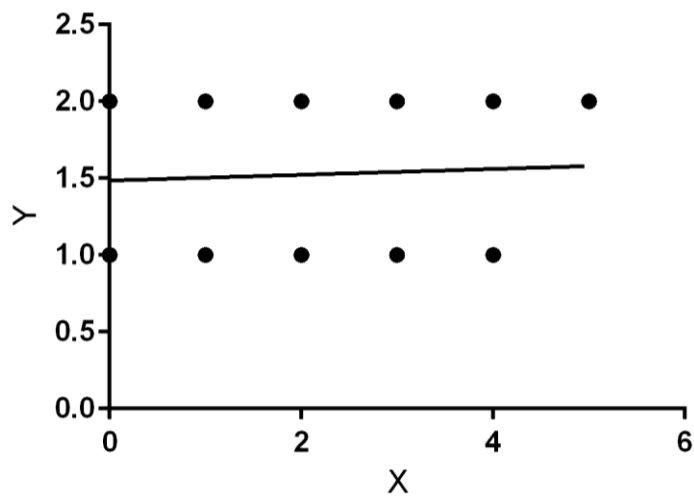


Fig 3: Linear regression correlation of maternal parity with twinning

DISCUSSION:

The incidence of twinning is known to be influenced by factors such as race, high maternal age and parity, ovulation induction therapy and assisted reproductive techniques. Available data suggests that twinning rates are highest in Nigeria (54/1000 births) and lowest in Japan (4.3/1000 births) [4, 5]. The occurrence of twins in our study (28.2/1000births) was consistent with previous studies done by Adamson H [6], Peter B [7], Musili FKJ [8] but it was lower than that reported by Nigerian investigators Olusanya BO [9], Abasiattai AM [10], Iyiola OA [11].

Majority of women in cases 60.6% and in control 66.0% group were in the age group of 21-25 yrs. Our result were comparable with that of Arora G G *et al.*; in 2016 [12] and C.M Yadav *et al.*; in 2015 [13] who observed that highest incidence of twin was found in age group 21-25 yrs (49.5% and 60.3% respectively). The mean age of women in cases was 24.48±3.48 years and in control group mean age was 24.18±3.07. As compared to our study, George Eleje and Zebulon in 2011 [14], Morten bjerregaad-Andersen in 2012 [15] and Godwin *et al.*; in 2013 [16] reported a higher mean age i.e. 30±2.33, 28.4 and 26.5 yrs respectively. This could be due to our culture of early marriage and early conception.

58.67% women with twin pregnancy belonged to urban area compared to 39.33% women with singleton pregnancy. The difference in the dwelling was statistically significant (p value .00008). This may be due to the fact that urban population were seeking medical aid in the form of ovulation induction, intra uterine insemination (IUI) and in-vitro fertilization(IVF) more than rural population. Our findings were in contrast with the study of Enid Simon Chiwanga *et al.*; in 2014 [17] and C.M Yadav *et al.*; in 2015 [13] where women with multiple gestations were significantly more likely to report living in rural areas (55.8% & 77.6% respectively). Most of the women (61.33% cases and 64% of control) were registered in our hospital. Our findings were in contrast to that of Qazi G in 2011 [18] and Shetty MB *et al.*; in 2016 [19] where majority of the women with twin pregnancy (82% and 54.8% respectively) were admitted as unbooked. In our study 58% women with twin pregnancy were literate where as 89% women with twins in a study done by Qazi G in 2011 [18] were illiterate.

40.7% women with twin pregnancy were primigravida and 59.3% were multigravida. Our results were comparable with previous studies done in the past. Salvi A *et al.*; in 2015 [20] observed in their studies that only 33% were primigravida and 67% were multigravida. Similarly in the study done by Gupta Priyanka *et al.*; [21] and Chowdhury S [22] showed

that twins were more in multigravida (66.9% and 64% respectively) while Nimbaikar *et al.*; in 2016 [3] in their study showed that 70% of patients were primigravida remaining (30%) were multigravida which was in contrast with our results. According to parity, 50% were nullipara and multipara each. It was observed by Ranawat R *et al.*; in 2016 [23] and N.Prapas *et al.*; in 2006 [24] that majority of women in twins were nulliparous (61.5% and 46% respectively) while Nigerian studies done by JT Muthir, VC Pam in 2007 [25] and Raphael Avidime Attah *et al.*; in 2016 [26] observed that majority of women with twin pregnancy were multiparous.

Mean gestational age in twin group was 34.44 ± 2.86 weeks and in singleton group mean gestational age was 37.33 ± 2.07 weeks. The mean gestational age of our study was comparable with other studies done previously where mean gestational age reported as 34±2.40 weeks by Geroge Eleje and Zebulon in 2011 [14] and 35 weeks by Arora G G *et al.*; in 2016 [12]. Ri-Na Su, Wei-Wei Zhu in 2015 [27] reported mean gestational age in twins to be 35.6±2.5 weeks, in singleton 39±1.6 weeks which was slightly higher than that reported by us. 67.3% women with twin pregnancy had gestational age <37 weeks.

In our study only 16% women underwent infertility treatment which was much lower than that reported by Nimbaikar PS *et al.*; (34%) [3]. while Priyanka Gupta *et al.*; in 2014 reported that only 5% of the mothers of twins conceived following ovulation induction [21]. Nowadays ovulation induction and assisted reproduction are the important cause for twin pregnancy.

A very weak positive correlation was seen between maternal age, gravidity, parity and twinning. Ananth CV, Chauhan SP in 2012 [28] stated that the rate of twinning increases dramatically with advancing maternal age because the use of ART is more likely in older women. Increasing parity has been shown to independently increase the incidence of twinning in all populations studied [29]. Eightfold increase in multiple gestations when parity was 4 or less and a 20-fold increase when parity was 5 or more compared with primiparas [30].

CONCLUSION:

Socio-demographic profile of the women with twin and singleton pregnancy like age, religion, socioeconomic status, literacy status, gravidity and parity did not differ significantly in our study. Significant difference was seen in residential status and gestational age. A weak positive linear regression correlation was seen between twinning and maternal age, gravidity and parity. Twin pregnancy was more in

women who had treatment for infertility in the form of ovulation induction, IUI and IVF.

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