MATERNAL SOCIO-DEMOGRAPHIC DETERMINANTS OF STILLBIRTH : A HOSPITAL BASED STUDY

Samarjeet Kaur[*], A.K. Upadhyay[**], D.K. Srivastava[***], Reena Srivastava[****], O.N. Pandey[*****]

[*] Lecturer, Department of Community Medicine, GSVM Medical College, Kanpur, Uttar Pradesh.
[**] Professor, Department of Community Medicine, BRD Medical College, Gorakhpur, Uttar Pradesh.
[***] Professor, Department of Community Medicine, BRD Medical College, Gorakhpur, Uttar Pradesh.
[****] Professor, Department of Obstetrics And Gynaecology, BRD Medical College, Gorakhpur, Uttar Pradesh.
[*****] Professor, Department of Community Medicine, BRD Medical College, Gorakhpur, Uttar Pradesh.
Address: Department of Community Medicine, GSVM Medical College, Kanpur, Uttar Pradesh.

ABSTRACT

Occurrence of stillbirth is a tragic event faced by the obstetrician. It has many implications for the couple, family and the health care provider. It reflects a failure or lapse in implementation of maternal and child health care programme. For many reasons, stillbirth has been under-studied, under-reported, and rarely considered in attempts to improve pregnancy outcomes in low-income countries.[25] Hence an effort was made to know the influence of mother's socio-biological factors on stillbirth. Object of this study was to determine maternal socio-biological factors influencing still-birth. Hospital based cross- sectional study undertaken in Post Natal Care (PNC) wards of Nehru hospital, Gorakhpur. The study period extended from July 2011 to August 2012. The study subject included recently delivered mothers and data was collected on semi-structured interview schedule to know various socio-biological variables such as mother's age, parity, inter-pregnancy interval etc, influencing the stillbirth. Chi-Square test was applied to observe the significance of association.

Key-words - Socio-biological factor; stillbirth; Mother's age; Parity; Inter-pregnancy interval; SLI

INTRODUCTION

Occurrence of stillbirth is a tragic event faced by the obstetrician. It has many implications for the couple, family and the health care provider. It reflects a failure or lapse in implementation of maternal and child health care programme. An estimated 3.2 million stillbirths occur worldwide each year with more than 98% of these in low to middle-income countries.[1-6] Stillbirth rates may be as high as 30-40 per 1000 births in low-income countries, especially areas of Sub-Saharan Africa and South Asia, while rates as low as 3-4 per 1000 are reported in many high-income countries.[6-12] In low income countries, a gestational age of 28 weeks or a birth-weight of 1000g is often selected as the lower limit of viability.[4] In high-income countries, stillbirth has generally been defined as a fetal loss beyond 20 or 22 weeks; however, some high-income countries such as Sweden have used 28 weeks as the lower cutoff as recently as 2010.[6] The World Health Organization has recommended using a gestational age and birth weight cutoff of 28 weeks and 1000g, respectively, as the lower limits for international comparisons.[4] For many reasons, stillbirth has been under-studied, under-reported, and rarely considered in attempts to improve pregnancy outcomes in low-income countries.[13] Hence an effort was made to know the influence of mother's socio-biological factors on stillbirth.

AIMS AND OBJECTIVES

The study was planned with the aim to determine maternal socio-demographic factors influencing pregnancy outcome in terms of stillbirth and live birth.

METHOD

The present study is a hospital based descriptive (observational) cross-sectional study undertaken in the postnatal care wards of Nehru Hospital which is training hospital, associated with BRD Medical College, Gorakhpur. Study was conducted over a period of one year from August 2011 to July 2012. The sample size was calculated using formula $4pq/d^2$, prevalence, p being 12% (based on pilot study conducted), absolute error, d taken as 4% and non response taken as 20% the sample size came out to be 316. The study subjects comprised of 314 recently delivered mothers who were admitted to the hospital with gestational age

of >28 weeks. A predesigned, pretested semi structured interview schedule was prepared for data collection; physical examination was undertaken after interview was over. The available health records were also reviewed. The results of investigations were recorded from the case sheets. From this meticulously collected data tables were made and statistical analysis was done to find out if any significant relation exists between dependant and independent variables which comprised of independent variables (mother's age, education, occupation SLI, parity, inter-pregnancy interval, tobacco consumption, physical activity) and dependent variable being stillbirth.

RESULTS

In the present study, the overall proportion of stillbirth was found to be 13.7%. It was observed that stillbirth was more among mothers in the age group of <20 years (60.4%). [Table 1] The association between mother's age and stillbirth was found to be statistically significant (p<0.05). Education of mother came out to be a favorable factor for pregnancy outcome. Stillbirth was high among illiterate mothers (53.4%) and as the level of education increased the percentage of stillbirth decreased. This association came out to be significant (p<0.01). The statistical association between SLI of mother and stillbirth was also statistically significant (p<0.05). Among the total mothers whose pregnancy ended into stillbirth, nearly 63% belonged to low SLI group. Father's education showed no statistically significant association with the stillbirth. Tobacco consumption by the mothers during pregnancy had detrimental effect on pregnancy outcome, nearly 58% of stillbirths were among the mothers who consumed tobacco in any form during their ante natal period and this association came out to be statistically significant (p<0.05).

Nearly 63% of the pregnancy among primiparous mothers ended into stillbirth. [Table 2] this association between parity and stillbirth was statistically significant (P<0.05). Stillbirth was high (54%) among mothers delivering at <37 weeks of gestation and this association between gestational week at delivery and stillbirth came out to be statistically significant (p<0.05). Nearly (56%) of stillbirth were seen among mothers who had a previous history of stillbirth and this association was statistically significant (p<0.05). Our study revealed that maternal anaemia was an unfavorable factor for the pregnancy outcome. Almost 51% of mothers with haemoglobin level less than 7 gm% delivered stillbirth baby, this association between haemoglobin level and stillbirth was statistically significant (p<0.05). No statistically significant association was seen between inter pregnancy interval and stillbirth. Among the mothers who did not receive any ANC almost 66% of them delivered a stillbirth baby , this association between ANC visits received by mother and stillbirth was statistically significant (p<0.01).

DISCUSSION

Out of total 314 mothers delivered in our institutional hospital 271(86.3%) gave live births while the pregnancy of 43 (13.7%) mothers ended into still birth.

This high proportion of still birth in tertiary hospitals may be explained by late referrals or admission of the high risk birthing mothers from the community to the hospital. This indicates lack of awareness regarding risk factors of still birth and their grave outcome among the birth attendants and the community.

Mothers whose pregnancy ended into still birth, majority belonged to the age group of <20 years (60.47%) followed by mothers belonging to age group of >30 years, 10 (23.26%) and 7 (16.28%) mothers belonged to the age group of 20-30 years. *Khandait et al*, also found that still birth rate was high among mothers who were teenagers.[22] *Rahman et al, McClure et al, Bhattacharya et al* found statistically significant association between advanced maternal age and still birth.[18,17,14] *Bapat et al* reported that age was not associated with still birth. [15]

The percentage of mothers whose pregnancy ended into still birth was more 58.14% among those who were consuming tobacco than who were not consuming tobacco (16.61%). Similar finding was reported by *Gupta PC* et al, while *Mishra et al* reported that there was no effect of tobacco on still birth. [25,26]

The percentage of still birth was high 53.49% among mothers who were illiterate, this percentage decreased

as level of education of mothers increased. Thus it was observed the percentage of still birth was high among illiterate mothers. This association came out to be statistically significant (P<0.05). These findings corroborate findings from other studies by *Korde-Nayak et al, McClure et al, Rahman et al, Vidyadhar et al,* while *Kumar et al* did not find parental literacy to have any influence on still birth. [19,17,18,16,27]

The percentage of still birth was high 39.53 % among mothers who had low standard of living index followed by 34.88% among mothers who had medium standard of living index, while 25.58% of mothers who had still birth had high SLI. There was statistically significant association between economic status and still birth. *Korde-Nayak et al, Bapat et al, Bhattacharya et al, Vidyadhar et al* found statistically significant association between economic status and still birth. [19,15,14,16] Low family income acts as hindering factor for early decision to seek care and thereby delay to receive care.

Among the total 43 still births maximum number of mothers i.e. 27 (62.79%) were primipara followed by grand- multipara 11 (25.58%) and multipara 5 (11.63%). Thus it was observed that among mothers for whom it was first pregnancy and for mothers who had 4 or more children there was high percentage of still birth. There is statistically significant association between parity and still birth which was also found by study done by *Korde-Nayak et al , McClure et al, Bhattacharya et al.* [19,17,14] While *Bapat et al* reported no association of parity and still birth. [15]

Among the still births majority were pre-term 23 (53.49%) while term and post-term were 17 (39.53%) and 3 (6.98%) respectively. It was observed that statistically significant association exists between prematurity and still birth. Similar findings were observed by *Rahman et al, Vidyadhar et al.* [18,16]

In our study we found that there exists no association between inter-pregnancy interval and pregnancy outcome. *William et al* in their study found higher percentage of still birth when inter pregnancy interval was less than one year, while *Kumar et al* reported that, short inter pregnancy was not associated with still   birth. [21,27]

History of still birth was present in 9 (56.25%) of mothers who gave still birth while mothers who gave live births this history of still birth was present only in 28.42% of them. There was statistically significant association between history of still birth in previous pregnancies and still birth in present pregnancy. Similar finding was observed by *Korde-Nayak et al, Bapat et al* in their studies. [19,15]

It was observed that among the mothers who did not receive ante natal care, 31 (65.96%) had still births. While the mothers who had received ante natal care 12 (4.49%) had still birth. The present study revealed that infrequent or no ANC visits during pregnancy were associated with substantially increased risk of foetal death. These results are in agreement with studies done by *Korde-Nayak et al, Rahman et al, Vidyadhar et al and Bapat et al.* [19,18,16,15]

Majority of mothers whose pregnancy ended into still birth 22 (51.16%) had haemoglobin <7 gm%, while Hb level of 7-10 gm%, 10-11 gm% and >11 gm% was found in 14 (32.56%), 6 (13.95%) and 1 (2.33%) respectively. Thus it was observed that still birth was high among anaemic mothers, and the finding was statistically significant. *Vidyadhar et al* found similar finding in their study. [16]

Table 1 Socio-demographic Factors of Mother And Birth Weight of Newborn				
VARIABLES	LIVE BIRTH	STILLBIRTH	TOTAL	RESULT
MOTHER'S AGE				
<20 Years	40 (14.8%)	26 (60.5%)	66 (21%)	p<0.05
20-30 Years	198 (73%)	7 (16.3%)	205 (65.3%)	
>30 Years	33 (12.2%)	10 (23.3%)	43(13.7%)	
TOTAL	271 (100)	43 (100)	314 (100)	
MOTHER'S EDUCATION				
Illiterate	81 (29.9%)	23 (53.5%)	104 (33.1%)	p<0.01
Up to primary	106 (39.1%)	11 (25.6%)	117 (37.3%)	
Up to high school	48 (17.7%)	7 (16.3%)	55 (17.5%)	
Intermediate and above	36 (13.3%)	2 (4.7%)	38 (12.1%)	
TOTAL	271 (100%)	43 (100%)	314 (100%)	
FATHER'S EDUCATION				
Illiterate	47 (17.3%)	9 (21%)	56 (17.9%)	p>0.05
Up to primary	59 (21.7%)	17 (39.5%)	76 (24.2%)	
Up to high school	90 (33.2%)	14 (32.5%)	104 (33.1%)	
Intermediate and above	75 (27.7%)	3 (7%)	78 (24.8%)	
TOTAL	271 (100%)	43 (100%)	314 (100%)	
TOBACCO CONSUMPTION				
Yes	45 (16.6%)	25 (58.1%)	70 (22.3%)	p<0.05
No	226 (83.4%)	18 (41.9%)	244 (77.7%)	
TOTAL	271 (100%)	43 (100%)	314 (100%)	
SLI				
Low	113 (41.7%)	27 (62.8%)	140 (44.6%)	p<0.05
Medium	135 (49.8%)	13 (30.2%)	148 (47.1%)	
High	23 (8.5%)	3 (7%)	26 (8.3%)	
TOTAL	271 (100%)	43 (100%)	314 (100%)	

Table 2- Obstetrical Factors And Pregnancy Outcome				
Variables	Live Birth	Stillbirth	Total	Result
PARITY				
Primiparous	74 (27.3%)	27 (62.8%)	101 (32.2%)	p<0.05
Multiparous	165 (60.9%)	5 (11.6%)	170 (54.1%)	
Grand Multi Parous	32 (11.8%)	11 (25.6%)	43 (13.7%)	
TOTAL	271 (100%)	43 (100%)	314 (100%)	
GESTATIONAL WEEK AT DELIVERY				
< 37 weeks	106 (39.1%)	23 (53.5%)	129 (41%)	p<0.05
37-40 weeks	156 (57.6%)	17 (39.5%)	173 (55.1%)	
>40 weeks	9 (3.3%)	3(7%)	12 (3.8%)	
TOTAL	271 (100%)	43 (100%)	314 (100%)	
INTER PREGNANCY INTERVAL (IN MONTHS)				
< 18 months	52(26.4%)	8 (50%)	60 (28.2%)	p>0.05
18-24 months	50(25.4%)	5 (31.3%)	55 (25.8%)	
>24 months	95 (48.2%)	3 (18.7%)	98 (46%)	
TOTAL	197 (100%)	16 (100%)	213 (100%)	
HISTORY OF STILL BIRTH				
Present	56 (28.4%)	9 (56.3%)	65 (30.5%)	p<0.05
Absent	141 (71.6%)	7 (43.7%)	148 (69.5%)	
TOTAL	197 (100%)	16 (100%)	213 (100%)	
HAEMOGLOBIN				
<7 gm%	31 (11.4%)	22 (51.2%)	45 (16.9%)	p<0.05
7-10 gm%	122 (45%)	14 (32.6%)	144 (43.3%)	
10-11 gm%	90 (33.2%)	6 (14%)	96 (30.6%)	
>11 gm%	28 (10.3%)	1 (2.2%)	29 (9.2%)	
TOTAL ˙	271 (100%)	43 (100%)	314 (100%)	
ANTE NATAL CARE				
Present	255 (95.5%)	12 (4.5%)	267 (100%)	p<0.05
Absent	16 (34%)	31 (66%)	47 (100%)	
TOTAL	271 (86.3%)	43 (13.7%)	314 (100%)	

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