ORIGINAL ARTICLE

Maternal Risk Factors & Pregnancy Wastage in a Rural Population of Jammu District

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Abstract

To study the association of maternal risk factors with pregnancy wastage, a prospective study was conducted for a period of one year among 305 pregnant rural women registered with fifty Anganwadi centres in field practice area of Department of Community Medicine, GMC Jammu. All the potential participants were interviewed in person using semi-structured, pre-tested proformae and evaluated clinically. All pregnant women were then followed to study the outcome in terms of abortion, live birth or still birth. Various maternal risk factors like anaemia, Hypertension, Ante partum Haemorrhage, Albuminuria, Glucosuria were studied and their association with pregnancy wastage was analysed using chi-square test. Out of 305 pregnancies followed, 43(14.1%) ended in pregnancy loss i.e. 34 abortions and 9 still births. Pregnancy wastage was statistically significantly associated with anaemia, H.T., APH and Glucosuria. Anaemia was found to independently affect adverse pregnancy outcome on multivariate analysis. Pregnancy wastage in our set up is mainly due to preventable and treatable risk factors which should be taken care of to prevent the wastage.

Key Words

Pregnancy wastage, Maternal Risk Factors, Prospective

Introduction

Higher proportion of women experiencing pregnancy wastage in any defined area is considered as a sensitive indicator of maternal health care services. It is a significant public health problem throughout the world especially in the developing countries. Pregnancy wastage mainly includes early pregnancy losses (abortions) and stillbirths. Actual incidence of abortions is not known. It is estimated that 30-55 million abortions take place worldwide annually which translates into an abortion ratio of 260-450 per 1000 live births. In India, it has been computed that about 6 million abortions take place every year, out of which 4 million are induced and 2 million are spontaneous. Still birth rate for developed countries is estimated to be much less i.e., 4.2- 6.8 per 1000 births whereas for developing world, the estimate ranges from 20-32 per 1000 live births (1).Pregnancy outcome is influenced by hereditary, environmental and bio-social factors like maternal age, inter pregnancy interval, parity, socio-economic factors,

education, availability of health services, past obstetrics history etc. Besides that, maternal illnesses like diabetes, Hypertension, Ante partum haemorrhage, anaemia, infections etc. are common obstetric factors responsible for poor pregnancy outcome (2). Most of these poor outcomes are preventable, in case early recognition of such cases along with remedial measures are instituted in time. The situation can be further improved by increasing public awareness regarding reproductive health and by ensuring better utilisation of available health services. An attempt was therefore made to find out the prevalence of maternal risk factors and their association with pregnancy wastage so that specific remedial measures can be put in place.

Material & Method

A rural health block, R.S.Pura, comprising of 8 zones and 24 sub-centres, under the administrative control of Department of Community Medicine, Government

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Medical College, Jammu was selected for the study purpose. There are 176 villages in the block with an estimated population of 1,79,6362. The main town of the block, being urban, was excluded from the study. A list of all Anganwadi Centres (191) in the selected block was procured. Giving due representation to all the zones, 6 AWCs from each of the zone were selected by Simple Random Sampling Technique. Since 2 AWCs were falling in ill-defined contiguous zones, both were included. Thus 50 AWCs (approx. 25% of total) were chosen for study purpose. All the pregnant women who were registered with these AWCs were requested to participate in the study. A total of 305 pregnant women were enrolled during first four months of study period starting from Nov. 2006. All these women were then followed up to record the outcome of pregnancy i.e. abortion, still birth or live birth. The women were interviewed by the investigator herself using semi-structured, pre-tested proformae. Information regarding socio-demographic variables like maternal age, literacy, occupation, religion, caste, socio-economic status, gravidity etc. was recorded during the initial visit. All the participants were also subjected to physical examination and routine investigations like Haemoglobin (Hb), urine for sugar and albumin. Hb estimation was done by Sahli's method. Hb level <11 gm% was taken as cut off point for labelling a women as anaemic as per WHO criteria. Urine examination was done for albumin and sugar by using Urine Reagent Strips (URS). Any evidence of > or equal to 1+ both for sugar and albumin was considered as positive test.The screening procedure for Blood Pressure was in accordance with criteria laid down by WHO i.e. Systolic pressure equal to or > 140 mm Hg or / and diastolic pressure > or equal to 90 mm Hg was taken as Hypertension. APH was taken as bleeding from or into genital tract occurring either during pregnancy after the period of viability or during labour, before the birth of child.

Statistical Analysis

Data was analysed using computer software Epi-info Version 6.0 and SPSS version 10 for windows. Qualitative variables are reported as proportions whereas quantitative variables are reported as Mean and SD. Univariate analysis was carried out and strength of relationship of risk factors with the outcome was evaluated using odds ratio with corresponding 95% confidence intervals. Chi Squared/Fishers exact test was applied to evaluate statistical significance. Logistic regression using stepwise entry method was employed to find out independent effects of each of the variables found significant on univariate analysis and adjusted OR with corresponding 95% C.I. reported. A p value of < .05 was considered as statistically significant. All p values reported are two tailed.

Results

A total of 305 pregnant women were studied during a period of one year. Majority of women (82.2%) were in 20-29 years age group. Only 9(2.95%) women were adolescents. Approximately four in five (84.6%) ever attended school including roughly one third (36.8%) being educated up to secondary level. Almost all the women (94.5%) were housewives engaged in moderate physical activity. Only 1.9% of the women were agricultural workers and labourers doing heavy physical work. The women were predominantly Hindus belonging to middle class. Gravidity wise distribution has shown that 37.2% of the women were primigravida and 10.7% have conceived for more than 3rd time as shown in *Table I*. Out of 305 pregnant women followed, 34 ended in abortion therefore, only 271 women could be followed up to term, out of which 9 resulted in still birth. Thus, a total of 43 pregnancies (14.1%) were wasted in one or other form. *Table 2* shows distribution of maternal risk factors, among which anaemia was most widely prevalent (78.6%). *Table 3* shows that anaemic women were at 6.49 times higher risk of developing pregnancy wastage. The association was statistically significant. A significant association was also observed for Hypertension, APH and Glucosuria. Although the risk of pregnancy wastage was more in women presenting with albuminuria, the association was not found to be statistically significant. The variables found to be significant on univariate analysis were included for analysis in multivariate/ logistic regression model. The variables were entered in a step wise manner and those variables that made the least difference in coefficients were removed from the analysis. It was observed that anaemia emerged as independent risk factor for pregnancy wastage.

Discussion

The present study helps to substantiate the evidence that majority of women continue to suffer from varying grades of anaemia. This evidence is generated by studies

Table 1. Distribution of Pregnant Women According to Socio-Demographic Variables (n= 305)

Variable	No.	%
1. Age (years)		
<19	9	2.95
20-29	251	82.2
30-39	43	14.0
>40	2	0.6
2. Religion		
Hindu	238	78
Muslim	7	2.3
Christan	1	0.3
Sikh	59	19.4
3. Socioeconomic status#		
Upper class & above	1	0.3
Middle*	247	80.0
Lower	50	16.4
BPL	7	2.3
4.Gravidity		
1	113	37.2
2	100	32.8
3	59	19.3
>3	33	10.7

*#Modified Udhay Pareek Scale *Upper middle, middle and lower middle classes have been merged and reported as middle class*

Table 2. Distribution of Various Risk Factors Among Pregnant Women

Risk Factor	Number of women (%)
Anaemia	240(78.6%)
Hypertension	31(10.1%)
APH*	5(1.8%)
Albuminuria	85(27.8%)
Glucosuria	8(2.6%)

*Since 34 women out of a total of 305, ended in abortion, only 271 remaining pregnant women taken as denominator for APH.

suggests that anaemia either alone or in combination with other clinical and social factors plays an important role in deciding the outcome of pregnancy. Anaemic women in our study were found to be at 6.49 times (CI 1.48-39.94) higher risk of developing pregnancy wastage in comparison to women with normal Hb. Further, it acted as an independent determinant of pregnancy wastage quite similar to findings reported by Rangnekar A.G.*et al* (4) and various other authors (5,6). Further, Hypertension and albuminuria don't emerge as independent determinants of adverse pregnancy outcome in the present study. Conflicting evidence is available in different studies regarding the role played by these factors in determining

Table.3 Association of Maternal Risk Factors with Pregnancy Wastage

Risk Factor		Live Birth	Pregnancy Wastage	Crude Odds Ratio(95% C.I.)	Chi Square
Anaemia	Absent	63(96.9%)	2(3.1%)	1.00(Ref.)	8.29
	Present	199(82.9%)	41(17.1%)	6.49(1.48-39.94)	p 0.003 **(HS)**
Hypertension	Absent	240(87.6%)	34(12.4%)	1.00(Ref.)	6.35
	Present	22(70.9%)	9(29.1%)	2.89(1.13-7.28)	p<0.01 **(HS)**
APH	Absent	259(97.3%)	7(2.7%)	1.00(Ref.)	Fisher' exact test
	Present	3(60%)	2(40%)	24.67(2.40-35.22)	P 0.009 **(HS)**
Albuminuria	Absent	191(86.8%)	29(13.2%)	1.00(Ref.)	0.55
	Present	71(83.5%)	14(16.5%)	1.30(0.61-2.73)	p 0.45 **(NS)**
Glucosuria	Absent	259(87.2%)	38(12.8%)	1.00(Ref.)	15.89
	Present	3(37.5%)	5(62.5%)	11.36(2.24-62.99)	P0.00006 **(HS)**

conducted by various investigators in different population settings using varying methodological approaches over the years. M.B.Kagu *et al* (3) and various other authors have reported consistent results. Available evidence

pregnancy outcome. Kameswaran C *etal* (5) reported positive association whereas on the contrary Zhang *etal* (7) in his study concluded that neither B.P. nor proteinuria are accurate predictors of adverse maternal and foetal

outcome. Contrary to Hypertension, Ante partum Haemorrhage has been shown to strongly affect the pregnancy outcome, even though the prevalence of APH is much less than the hypertension in pregnancy. The findings are supported by a study conducted by Khaskheli Meharunnissa *etal* (8). Singh M (9) also found that the incidence of perinatal deaths was about 9-10 times higher in those with history of APH as compared to those with a normal history. Many other studies (5,6,10,11) also reported similar results. Similarly glucosuria has also shown a stronger association with pregnancy wastage (O.R.11.3, CI 2.24-62.99). Ruth (12) and Gillian (13) also reported higher rate of pregnancy wastage in diabetic mothers. Recent study conducted by Ananth and Basso (14) also reported that hypertension in pregnancy is associated with an increased risk of stillbirth i.e. pregnancy wastage.

Conclusion

With, the given risk factors are important determinants of Pregnancy wastage either alone or in combination with each other. Since majority of these risk factors are preventable and treatable, there is a strong need to strengthen the provision of quality antenatal care focussing especially on identification of cases early in the pregnancy and timely referral of high risk cases to tertiary care hospitals for proper management, so as to prevent the wastage.

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