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BURDEN OF ANEMIA AMONG PREGNANT WOMEN IN CORRELATION WITH ABORTION STATUS

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ABSTRACT

Background: Anemia itself is not a disease but a precursor and predictive sign of the presence of disease. Anemia reported during pregnancy is a burdensome public health problem all around the world; problem is vast among developing countries. Women during pregnancy are more prone for developing anemia not only because of increased iron demand and its poor bioavailability along with hemodilution. **Material & Methods:** In the present prospective observational study 400 Pregnant women were enrolled from outdoor, antenatal clinic and from ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant. **Results:** Among pregnant women with nil past abortions 108 (29.7%) had no anaemia, 140 (38.5%) females had mild anemia, 106 (29.1%) females had moderate anemia and 10 (2.7%) had severe anemia in this group. Among pregnant women with 1 abortions 10 (35.7%) had no anaemia, 6 (21.4%) females had mild anemia, 12 (42.9%) females had moderate anemia and there was no cases of severe anemia in this group. Among the group of pregnant women with 2 abortions, 4 (66.7%) of pregnant women had moderate anemia and 2 (33.3%) of pregnant women had severe anemia. Among the group of pregnant women with >2 abortions, 2 (100%) of pregnant women had severe anemia. (p value < 0.001) **Conclusions:** The magnitude and burden of anemia is very high and the population living among urban and rural areas both was at higher risk of developing anemia. We found statistically significant correlation of anemia with increasing number of abortions.

Key words: Anemia, Pregnancy, Abortion status.

INTRODUCTION

Anemia is among the strongest associated factor which decide the fate and outcome of pregnancy. Since anemia is act as silent epidemic, it is as harmful and compelling as infectious diseases epidemics. It was reported that anemia contributes for more than 20% of maternal deaths worldwide **(1)**. The word "Anemia" is a Greek word which means an- 'not', haima- 'blood', refers to 'no blood'. Anemia itself is not a disease but a precursor and predictive sign of the presence of disease.

Anemia reported during pregnancy is a burdensome public health problem all around the world; problem is vast among developing countries. Women during pregnancy are more prone for developing anemia not only because of increased iron demand and its poor bioavailability along with hemodilution physiological increase in plasma volume (physiological increase in plasma volume) which acts synergistically **(2)**. Among these maternal deaths more than 50% of the maternal deaths occur among South Asian countries. India

contributes for 80% of maternal death occurred among South Asian countries **(3)**.

There are several risk factors associated with morbidity and mortality among pregnant women such as postpartum hemorrhage, abortion, , low birth weight baby, still birth, high perinatal mortality, undercurrent infection, infant mortality and maternal mortality **(4)**. Regarding this context of combating anaemia during pregnancy, with far reaching benefits in terms of safe motherhood and healthier future generations, an attempt has been made to know the magnitude of anaemia among urban and rural pregnant women along with to study the relationship between anaemia and contributory factor of abortion status to meet the challenge of protecting maternal and neonatal health.

MATERIAL & METHODS

The present prospective study was conducted at department of obstetrics and gynaecology of Geetanjali Medical College and hospital, Udaipur. The study duration was of one year from June 2015 to July 2016. A sample size of 400 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.2. Pregnant women were enrolled from outdoor, antenatal clinic and from ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant.

The data were collected by predesigned, multiple response type of questionnaire from each pregnant woman (above 18 years of age and beyond 12 weeks of amenorrhea) after taking the written consent. The questionnaire was address on the topics of anaemia and our study variables abortions status and geographical living areas. Data analysis was carried out using SPSS v22. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

RESULT

In the present study we enrolled 400 pregnant women who were classified in two major groups according to the residential area. Women who never had abortions were enrolled in a group of abortion status zero. We classified other three groups further as abortion status one, two and more than two. There were 364 females in the group of abortion status zero, 28 females in the abortion status one, 6 females in the abortion status two and 2 females in the group abortion status of more than two. Among pregnant women with nil past abortions 108 (29.7%) had no anaemia, 140 (38.5%) females had mild anemia, 106 (29.1%) females had moderate anemia and 10 (2.7%) had severe anemia in this group. Among pregnant women with one past abortions 10 (35.7%) had no anaemia, 6 (21.4%) females had mild anemia, 12 (42.9%) females had moderate anemia and there was no cases of severe anemia in this group.

Among the group of pregnant women with two past abortions, there were no cases of no anemia and mild anemia, 4 (66.7%) of pregnant women had moderate anemia and 2 (33.3%) of pregnant women had severe anemia. Among the group of pregnant women with more than two past abortions, there were no cases of no anemia, mild anemia and moderate anemia and 2 (100%) of pregnant women had severe anemia. These differences in burden of anemia was statistically highly significant (p value < 0.001). [Table 1]

Table 1: Relationship between abortions and severity of anaemia

Abortions	**Severity**				
	No anaemia	Mild anaemia	Moderate anaemia	Severe anaemia	Total
Nil	108 (29.7%)	140 (38.5%)	106 (29.1%)	10 (2.7%)	364 (100%)
1	10 (35.7%)	6 (21.4%)	12 (42.9%)	0 (0%)	28 (100%)
2	0 (0%)	0 (0%)	4 (66.7%)	2 (33.3%)	6 (100%)
More than 2	0(0%)	0 (0%)	0(0%)	2 (100%)	2 (100%)
Total	118 (29.5%)	146 (36.5%)	122 (30.5%)	14 (3.5%)	400 (100%)
χ^2 = 41.314	df= 9	P< 0.001			

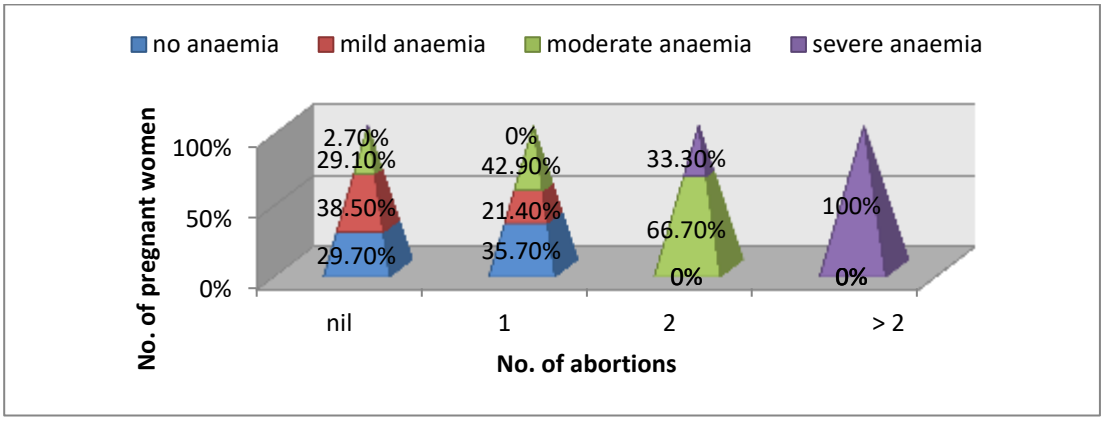
In the present study Among pregnant women with nil past abortions 108 (29.7%) had no anaemia 68 were from urban area and 40 from rural area. Out of 140 (38.5%) females had mild anemia 66 were from urban area and 74 from rural area. Out of 106 (29.1%) females had moderate anemia 44 were from urban area and 62 from rural area and out 10 (2.7%) who had severe anemia in this group all belong to rural areas. Among pregnant women with one past abortions 10 (35.7%) had no anaemia 6 were from urban area and 4 from rural area. Out of 6 (21.4%) females who had mild anemia 4 were from urban area and 2 from rural area. Out of 12 (42.9%) females who had moderate anemia 6 were from urban area and 6 from rural area. Among the group of pregnant women with two past abortions, all 4 (66.7%) of pregnant women who had moderate anemia were from urban areas and 2 (33.3%) pregnant women who had severe anemia were from rural areas. Among the group of pregnant women with more than two past abortions, both the 2 pregnant women who had severe anemia were belong to urban areas. These differences in burden of anemia was statistically significant (p value < 0.05). [Table 2]

Table 2: Relationship between abortions and severity of anaemia among urban and rural pregnant women

Abortion	Severity								
	No anaemia		Mild anaemia		Moderate anaemia		Severe anaemia		Total
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	
Nil	68	40	66	74	44	62	0	10	364
1	6	4	4	2	6	6	0	0	28
2	0	0	0	0	4	0	0	2	6
>2	0	0	0	0	0	0	2	0	2
Total	74	44	70	76	54	68	2	12	400

Urban ($\chi^2 = 106.249$, $p < 0.001$); Rural ($\chi^2 = 17.708$, $p = 0.007$)

Fig. 1: Relationship between no. of abortions and severity of anaemia



DISCUSSION

The present prospective study was conducted at the field practicing areas under department of obstetrics and gynecology of our tertiary care hospital. The aim of present study was assessing the magnitude and burden of anaemia along in the correlation to birth intervals among two consecutive pregnancies. In the present study we enrolled 400 pregnant women from different urban and rural areas and further subdivided them into four subgroups of no anemia, mild anemia, moderate anemia and severe anemia. In the present study the age of enrolled pregnant women was ranged from 19 to 38 years. The mean age of the enrolled pregnant women was 23.88 ± 3.66 years. There were no pregnant women in the present study who aged less than 19 years of age.

In the present study the overall burden of anaemia was found to be 69.5% which was comparatively more among rural areas (76%) in comparison to the urban areas (63%) and difference in the burden of anaemia was statically significant (p <0.05). The odds of anaemia were 1.4 times higher among rural areas than urban pregnant mothers. The results of present study were comparable and nearly similar to the results of surveys of India conducted by National Family Health Survey (NFHS-3) and another survey conducted by District Level Household Survey (DLHS-3).(5)(6) The results of present study were comparable and nearly similar to the study conducted by Toral M. Goswami et al among pregnant women in 2014 on anaemia status during pregnancy and effects of anemia on perinatal outcome.**(7)**

In the present study, there were 364 females in the group of abortion status zero, 28 females in the abortion status one, 6 females in the abortion status two and 2 females in the group abortion status of more than two. Among pregnant women with nil past abortions 108 (29.7%) had no anaemia, 140 (38.5%) females had mild anemia, 106 (29.1%) females had moderate anemia and 10 (2.7%) had severe anemia in this group. Among pregnant women with one past abortion 10 (35.7%) had no anaemia, 6 (21.4%) females had mild anemia, 12 (42.9%) females had moderate anemia and there was no cases of severe anemia in this group.

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CONCLUSION

We concluded from the present study that the magnitude and burden of anemia is very high and the population living among urban and rural areas both were at higher risk of developing anemia. We found statistically significant correlation of anemia with increasing number of abortions and reported that the burden of severe anemia was higher among pregnant women who had more than two abortions.

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