Table 4. Relation of weight for length percentile of new born with Hemoglobin of the mother

Weight for length percentile	Normal (Hb≥11.0)		Anemic (Hb<11.0)		P value
	No	%	No	%	
<3rd	2	1.4	4	6.7	0.215
3rd-50th	53	37.5	19	31.7	
50th-97th	65	46.4	27	45.0	
>97th	20	14.3	10	16.7	

Table 5. Relation of OFC for age percentile of new born with Hemoglobin of the mother

OFC for age percentile	Normal (Hb≥11.0)		Anemic (Hb<11.0)		P value
	No	%	No	%	
<3rd	1	0.7	3	5.0	0.063
3rd-50th	92	65.7	43	71.7	
50th-97th	47	33.6	14	23.3	
>97th	-	-	-	-	

Discussion

In this study anemia prevalence in pregnant women was found to be 30.5%. In India the overall prevalence of anemia among pregnant women was estimated to be 72.5 %[8], in Nigeria (61.2%) [9], in Turkey 43% in [10], in Bangladesh (36%) [11], in India another study (34.4%) [12], in New Zealand (13%) [13].

This study focused on the relationship between maternal anemia and perinatal outcome where we found that maternal anemia during pregnancy was associated with low birth weight, affect length and chest circumference but not head circumference that related to duration of anemia first, second or third trimester anemia.

In a study done in Turkey between January 2005 and December 2006[10], on two groups of pregnant women (first group with anemia and second group without anemia), of 3688 pregnant women 1588 (43%) were found to be anemic, the anthropometric measurements (weight, length, head circumference and chest circumference) of newborn of anemic and non-anemic mother groups showed statistically significant difference [10].

In a study done in Pakistan, from January 2004 to December 2005[14], from 860 pregnant women, 402 (46.7%) were anemic, perinatal outcome include preterm delivery, low birth weight and intrauterine growth retardation, low birth weight among anemic women was 1.8 time more than non-anemic [14].

In a study done in Pakistan from October 2001 to October 2002) [16], on 629 pregnant women of these 313 were anemic the risk of low birth weight was 1.9 higher among anemic women [15].

In a study done in India on 102 pregnant women show that (34.3%) of pregnant women were anemic, the maternal hemoglobin concentration showed significant correlation with birth weight ($P = 0.01$) [16].

In a study done in Sri Lanka on 817 pregnant women, about (7.1%) were anemic the study show that anemia during pregnancy was not adversely associated with any of pregnancy outcome, hemoglobin level of > 13.9 g/dl was adversely associated with low birth weight [17].

In a study done in Norway, 877 pregnant women, with low hemoglobin levels at term were closely associated with increased frequency of newborn in heavy weight for date [18].

In this study, the effect of anemia first affect the weight and then affect the length and chest circumference then affect head circumference that may explain why head circumference not affected either due to anemia in last trimester or treated anemia during pregnancy.