Keywords:

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and 1 mg of folic acid daily, while non anemic women were prescribedoncentration <10 g/dl) with singleton pregnancies out of 4150 50 mg of iron supplementation and 0.5 mg of folic acid daily. Womenwomen, giving an incidence of 5.66%. Seven women with gestational with severe anemia were not excluded because we wanted to obsetizetes were excluded and 16 women were lost during follow-up. the severity of anemia on pregnancy outcomes. Two women received remaining 212 women were followed up till delivery. e same parenteral iron because of intolerance to oral iron therapy. How means of nonanemic pregnant women (Hb concentration 11 g/dl) concentration was controlled again at 36 weeks gestation.

Variables recorded included maternal age at delivery, parity (deliveries at 28 completed weeks gestation), gestational age at

booking (con rmed by an ultrasound scan performed before 20 weeks At booking, eight women had severe anemia (Hb concentration < gestation), Hb concentration at booking and at 36 weeks gestation g/dl), 11 had moderate anemia (Hb concentration: 6 to < 8 g/dl), and complications observed during pregnancy, gestational age at deliver 33 mild anemia (Hb concentration: 8 to < 10 g/dl). ree women with mode of delivery, birth weight, fetal sex and placental weight. Heb at booking between 3.4 and 6 g/dl whose Hb concentration <8 g/ concentration was checked during labor at 35 weeks in four wometh at 36 weeks received blood transfusions until new Hb value was who had preterm deliveries. Five ml of venous blood was collected and g/dl.

Hb concentration was measured on automated cell counter (Huma Count 30TS). Before measuring placental weight, membranes were complications observed during pregnancy were LBW (<2500 g at removed, the cord sectioned at the placental insertion site and fetal pressure 140/90 mm Hg associated with proteinuria 300 mg/24h) (Table 2)

(Table 2).

Sample size was calculated using the following formula: N = $2 \times (1/1-f) \times (Z+Z / P_0-P_1)^2 \times P \times (1-P)$ where f was the assumed percentage of women that might be lost during follow-up (10%), Z group (mean Hb concentration 8.9 ± 1.9) as against two (0.9%) among =1.65, Z =1.28, Pthe assumed prevalence of low birth weight (LBW) the noranemic group (mean Hb concentration 11.7 ± 0.6) (RR 7, (<2500 g at birth) in anemic women (10%)the assumed prevalence

of LBW among non anemic women (2%) and $P_{i} \in \mathbb{R}^{n}/2$. According Ten cases of pre eclampsia (4.7%) were observed in the anemic to this formula, at least 169 women were needed in each group. is roup (mean Hb concentration 8.5 ± 0.8) and three (1.4%) in the non-study received approval from the institutional ethics committee. An emic group (mean Hb concentration 11.7 ± 0.6) (RR 3.3, 95%CI 0.9-informed consent form was obtained from each woman. Data were 1.9).

analyzed using SPSS 18.0. Data of anemic pregnant women were compared to those of non anemic pregnant women. Fisher's exact Premature deliveries were observed amongst six (2.8%) anemic test was used to compare categorical variables and t-test to compare gnant women (mean Hb concentration 8.7 ± 0.9), and only two continuous variables. We used relative risks with their 95% con den(9.9%) among the nomemic group (mean Hb concentration $11.7 \pm$ intervals (CIs) to present the comparison between the two group9.6) (RR 3, 95%CI 0.6-14.6, P=0.28).

P<0.05 was considered statistically signi cant.

Results

Among women who were anemic at booking, mean Hb concentration at 36 weeks gestation was 8.7 ± 0.9 for those who delivered before 37 complete weeks, as against 10.8 ± 1.2 for those where the before at 27 weeks a contaction or above ($P_{2}(0, 0001)$)

During the study period, we received 235 anemic women (Hbdelivered at 37 weeks gestation or above (P<0.0001).

Variables	Anemic pregnant women (range)	Non anemic pregnant women (range)	RR	&RQ¿GH Interval	QFH Pvalue
Baseline characteristics					
Number of women	212	212			
Gestational age at booking (weeks)	19.5 ± 7.3 (6-34)	17.8 ± 4.9 (6-29)			
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Vaginal deliveries occurred in 198 anemic women (93.4%) pregnant women. is rate is a bit lower than that of 8.6% reported by as against 186 (87.7%) in a momemic women. e indications for some authors [7].

emergency cesarean section in the anemic group were cephalopelvic. disproportion (CPD) (6 cases), acute fetal distress (AFD) (4 cases), Mean gestational age at delivery was similar amongst anemic severe preclampsia and placenta praevia (one case each). end nonanemic pregnant women (P=0.07), but anemic pregnant indications for emergency CS in the **none**mic group were CPD (7 women were more at risk for premature deliveries (RR 3, 95%CI cases), AFD (5 cases), placenta praevia (3 cases) and placenta abrophid (one case). e indications for elective CS were scarred uterus in the pright be explained by the fact that anemia with resulting hypoxia can anemic group (2 cases), while in the **none**mic group, the indications were scarred uterus (7 cases) and praevia myoma (2 cases).

Main indications for episiotomy were imminent perineal tears and instrumental delivery while those for instrumental deliveries were mainly prolonged second stage of labor and poor maternal compliance when pushing.

Birth weight distribution among both groups is shown in Table 3. In relation to fetal sex, mean birth weight for boys was 3427.6 ± 533.1 g among initially anemic pregnant women (n=101) as against 3304.6 ± 359 g among nomemic pregnant women (n=99) (P=0.006), while mean birth weight for girls was 3237.1 ± 444.2 g among initially anemic pregnant women (n=111) as compared to 3189.6 ± 289.5 g among non-anemic pregnant women (n=113) (P=0.013).

Among women who were anemic at booking, mean birth weight of babies delivered by women (n=18) whose 36 weeks Hb <9 g/dl was 2742.1 \pm 585 g as against 3439.6 \pm 439.9 g for babies delivered by women (n=170) whose 36 weeks Hb 10 g/dl (P<0.0001). Mean birth weight of babies delivered by women (n=18) whose 36 weeks Hb <9 g/ dl was lower than that of babies delivered by women of thereonic group (Hb 11 g/dl) (2742.1 \pm 585.1 g vs 3243.5 \pm 328.2 g, P=0.002).

Mean birth weight of babies delivered by initially anemic women (n=170) whose 36 weeks Hb 10 g/dl was higher (3439.6 ± 439.9 g) than that of babies delivered by women of the arrownic group (3243.5 ± 328.2 g) (P<0.0001).

Placental weights varied between 225 and 820 g with a mean of 499.7 \pm 101.4 g among anemic pregnant women as against a range of 301 to 520 g with a mean of 408.5 \pm 45.2 g amongneomic pregnant women (P<0.0001). No maternal death was observed during the study period.

Discussion

Hb concentration <10 g/dl was observed in 5.66% of our anemic

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episiotomies and instrumental deliveries have already been noticed by . R X U D . . * some authors especially when booking Hb was <7.5 g/dl [6].

Mean birth weight was signi cantly increased among the initially anemic pregnant women (P=0.039), with a di erence in mean of 85 Malhotra M, Sharma JB, Batra S, Sharma S, Murthy NS, et al. (2002) Maternal g. is was observed among both male fetuses (P=0.006), and female and perinatal outcome in varying degrees of anemia. Int J Gynaecol Obstet fetuses (P=0.013). is increase in birth weight can be explained by the increased placental weight observed among initially anemic women. Levy A, Fraser D, Katz M, Mazor M, Sheiner E (2005) Maternal anemia during e placenta is the organ through which there is transfer of nutrients and oxygen to the fetus [18,19]. is transfer is maximized when the placenta is well developed. is transfer of nutrients is associated with⁸. an increased transfer of oxygen, when anemia has been corrected. Anaesth 54: 380-386. A maximum transfer of nutrients is associated with an increased fetal growth, hence, with an increased birth weight, as observed in Nutr 71: 1285S-7S. pregnancies complicated by gestational diabetes [19]. Moreover, = KDQJ 4 \$QDQWK &9 /L = 6PXOLDQ -& higher doses of iron and folic acid in our study, as observed in the birth: a prospective cohort study. Int J Epidemiol 38: 1380-1389. anemic group, might have led to rapid correction of anemia in some. Brabin BJ, Hakimi M, Pelletier D (2001) An analysis of anemia and pregnancycases and, therefore, increased birth weight. e increase in mean birth

%ULDQG 9 0DVVRXJERGML \$ &KLSSDX[Determination of prevalence and etiology of anemia during pregnancy in VRXWKHUQ %HQLQ LQ FRQMXQFWLRQ ZLWK UHYLV Med Trop (Mars) 71: 63-67.

79: 93-100.

pregnancy is an independent risk factor for low birthweight and preterm delivery. Eur J Obstet Gynecol Reprod Biol 122: 182-186.

Grewal A (2010) Anaemia and pregnancy: Anaesthetic implications. Indian J

Steer PJ (2000) Maternal hemoglobin concentration and birth weight. Am J Clin

0 D W H

related maternal mortality. Nutr 131: 604S-614S.

weight among the anemic pregnant women who received iron during2. Weiss G, Goodnough LT (2005) Anemia of chronic disease. N Engl J Med 352: pregnancy has been documented by others [20-22]. 1011-1023

Nevertheless, there was an increased risk of LBW (RR 7, 95%CI/VQFK 65 :K\ problem. J Nutr 141: 763S-768S. :K\ QXWULWLRQDO LURQ GH¿FLHQF

1.6-30.4, P=0.003) among anemic pregnant women, especially when Hb was <9g/dl at 36 weeks gestation, as observed elsewhere [4,9,140]. is might be explained by the fact that, despite the increased placental weight, anemia was so severe that the oxygen transfer to the fetus was limited. Indeed, some researchers think that low birth weight observed among anemic women might be due to decreased oxygen supplementation to the fetus [23]. Women with Hb <9g/dl should either be transfused or receive parenteral iron for a rapid correction of the Hb concentration [24], before 32 weeks for instance, to improve fetal growth. More studies should be carried out to con rm this.

Conclusion

Anemia corrected before term with iron and folic acid was associated with a signi cant increase in birth weight. Hb still <9g/dl at 36 weeks gestation was associated with an increased risk of LBW. At Hb 9g/dl there were few fetal and maternal complications observed. Nevertheless, we should not allow women to have Hb <10 g/dl at term, since studies have shown that anemic women are at a higher risk of dying from post partum hemorrhage [10].

References

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- 1. Goonewardene M, Shehata M, Hamad A (2012) Anaemia in pregnancy. Best Pract Res Clin Obstet Gynaecol 26: 3-24.
- Barroso F, Allard S, Kahan BC, Connolly C, Smethurst H, et al. (2011) Prevalence of maternal anaemia and its predictors: a multi-centre study. Eur J Obstet Gynecol Reprod Biol 159: 99-105.
- 3. Olubukola A, Odunayo A, Adesina O (2011) Anemia in pregnancy at two levels of health care in Ibadan, south west Nigeria. Ann Afr Med 10: 272-277.
- 4. Ali AA, Rayis DA, Abdallah TM, Elbashir MI, Adam I (2011) Severe anaemia is associated with a higher risk for preeclampsia and poor perinatal outcomes in Kassala hospital, eastern Sudan. BMC Res Notes 4: 311.

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