



## ANEMIA AND ITS ASSOCIATION WITH PARITY.

Tazeen Shah<sup>1</sup>, Jamshed Warsi<sup>2</sup>, Zulfiqar Laghari<sup>3</sup>

1. MBBS, M.Phil  
Assistant Professor  
Department of Physiology  
Liaquat University of Medical and  
Health Sciences, Jamshoro,  
Pakistan.
2. Ph.D  
Department of Physiology  
University of Sindh, Jamshoro,  
Pakistan.
3. Ph.D  
Department of Physiology  
University of Sindh, Jamshoro,  
Pakistan.

**Correspondence Address:**

Dr. Tazeen shah  
Banglo Num#19A, DHA,  
Phase-II, Hyderabad.  
shahtazeen@yahoo.com

**Article received on:**

19/07/2019

**Accepted for publication:**

15/10/2019

**ABSTRACT... Objectives:** To evaluate that multigravidity is a strong risk factor for anemia. **Study Design:** Cross sectional study. **Setting:** Department of Physiology University of Sindh Jamshoro, and Civil Hospital. **Period:** January 2019 to June 2019. **Material & Methods:** On 600 pregnant females selected by convenient random sampling, aged between 18 to 40 years. Complete blood count (CBC) of all participants was performed by using CBC hematology analyzer Celltac Alpha MEK-6500 by Nihon Kohden Germany. **Results:** Out of 600 pregnant female population 294(49%) were non. anemic, 309(51.5%) were anemic out of which 78(13%) are mild anemic, with Hb(10-10.9mg/dl), 144(24%) moderately anemic with Hb (7-10.9 mg/dl) and 87(14.5%) are severely anemic with a Hb<7 mg/dl. Moderately anemic pregnant women were in abundance in primigravida population. The hemoglobin of primiparous pregnant females was (11.45±1.45) and of multiparous was (8.93±1.66) which is highly significant (P= 0.001), Hematocrit of primigravida (30.92±4.2) significantly (P= 0.001) higher, whereas in multigravida it was reported as (24.2±8.66) The MCV in primigravida was (80.24±6.45) significantly (P= 0.001) greater than that of multigravida (72.5±10.5). MCH in primigravida (25.9±2.56) and in multiparous (23.75±2.7) which is also significant with (P= 0.003) MCHC in primiparous (30.58±2.19) and in multiparous (31.34±2.5) with (P= 0.05). **Conclusion:** It is concluded that high parity is risk for developing iron deficiency anemia in pregnancy, the incidence of anemia increases with the number of pregnancies.

**Key words:** Anemia, Multigravida, Primigravida.

**Article Citation:** Shah T, Warsi J, Laghari Z. Anemia and its association with parity. Professional Med J 2020; 27(5):968-972. DOI: 10.29309/TPMJ/2020.27.05.3959

### INTRODUCTION

In developing countries, anemia is one of the most common medical complaints during pregnancy<sup>1</sup> during pregnancy requirement of iron increases from 2.5mg/day in first few weeks to 6.6mg/day in later trimester.<sup>2</sup> According to the world data 56% of pregnant women in low and middle income countries are suffering from anemia<sup>3</sup> Usually 30- 50% pregnant females are iron deprived when pregnant.<sup>4</sup> According to World Health Organization(WHO) anemia in pregnancy is defined as hemoglobin (Hb) concentration of less than 11 g/dl, It is a serious matter of public health concern when a population is having anemia prevalence of ≥40%<sup>5</sup> Factors contributing for the occurrence of anemia, includes poor socioeconomic status, decreased spacing between child birth, maternal infection, and multigravidity,<sup>6</sup> there is not much data available on association of parity with the incidence of

anemia, some studies are suggestive of the fact that primigravida women were 61% less likely to develop anemia during pregnancy as compared to multigravida women, and some shows increase association of anemia with increasing order of pregnancy<sup>7</sup> in this study the incidence of anemia in multiparous women is compared to primiparous women.

### MATERIAL & METHODS

A cross sectional and/or case control study was conducted at department of physiology University of Sindh Jamshoro, and Civil Hospital, on pregnant women who are admitted to deliver baby at Lumhs, Hyderabad/Jamshoro in January 2019 to June 2019, convenient random sampling technique, was used to select 600 pregnant females aged between 18 to 40 years. Women were divided into groups on the basis of their gravidity, primigravida, gravida 2, gravida 3,

gravida 4, gravida 5 and above. Women with the history of chronic disease, miscarriages, twin pregnancies, still births, and drug abuse were excluded from the study.

The participants written consent was taken for participation of study, medical history of pregnant females was taken by questionnaires consisted of demographic and socioeconomic information including reproductive history, health conditions and medicines used, blood draws, Pulse, blood pressure, and general physical examination was performed by standard protocols.

Blood samples of 5 ml was collected from each participant through venipuncture from Median Cubital vein and stored in tubes (ATLAS-LABOVAC Itliano) containing EDTA (AK3EDTA) as an anticoagulant, complete blood count (CBC) was performed by using CBC hematology analyzer Celltac Alpha MEK-6500 by Nihon Kohden Germany, in sterilized condition in LUMHS Research laboratory. All the steps recommended for safe phlebotomy were followed. The samples were drawn in a sterile, calm, quiet, and well-lit place with the help of single use disposable syringes (THIZHOU JINQING Medical Instrument China).

Hemoglobin (gm/dL) Hematocrit (%), MCV (Mean corpuscular volume as femtoliter), MCH (Mean corpuscular hemoglobin as pg/dl), MCHC (Mean corpuscular hemoglobin concentration as %), was estimated.

Data are provided as percentage, averages  $\pm$  SD; "n" represents the number of pregnant women examined. Data were assessed by using SPS 21.0 (IBM, Incorporation, USA) (Statistical package for social sciences), T-test was applied, and results with  $p < 0.05$  were considered statistically significant.

## RESULTS

Irrespective of the gravidity Out of 600 pregnant female population 294(49%) were non. anemic, 309(51.5%) were anemic out of which 78(13%) are mild anemic, with Hb(10-10.9mg/dl), 144(24%) moderately anemic with Hb(7-10.9 mg/dl) and

87(14.5%) are severely anemic with a Hb<7 mg/dl as shown in (Table-I).

The study population was divided into 2 basic groups 300 primigravida, and 300 multigravidas, on the basis of their gravidity. Among the primigravida population, more than half, i.e., 57% (171 out of 300) of the women showed no signs of anemia, 43% (129 out of 300) of primigravida were diagnosed with anemia out of which 12% (36) had mild anemia, 21.3% (64) had moderate anemia and only 9.6% (29) had severe anemia. Moderately anemic pregnant women were in abundance.

In multigravida 60% (180 out of 300) of multigravida women were found to be anemic, 14.3% (43) had mild anemia, 26.3% (79) had moderate anemia and only 19.3% (58) had severe anemia. In multigravida population only 40% (120 out of 300) were found to be non-anemic, as shown in (Table-II).

Mean values of the Hb, HCT, MCV, MCH and MCHC of both groups were i.e primary gravida and multigravida are given and are compared by applying t.test, in (Table-III)

The hemoglobin of primiparous pregnant females was ( $11.45 \pm 1.45$ ) and of multiparous was ( $8.93 \pm 1.66$ ) which is highly significant ( $P = 0.001$ ), Hematocrit of primigravida ( $30.92 \pm 4.2$ ) significantly ( $P = 0.001$ ) higher, whereas in multigravida it was reported as ( $24.2 \pm 8.66$ ). The MCV in primigravida was ( $80.24 \pm 6.45$ ) significantly ( $P = 0.001$ ) greater than that of multigravida ( $72.5 \pm 10.5$ ). MCH in primigravida ( $25.9 \pm 2.56$ ) and in multiparous ( $23.75 \pm 2.7$ ) which is also significant with ( $P = 0.003$ ) MCHC in primiparous ( $30.58 \pm 2.19$ ) and in multiparous ( $31.34 \pm 2.5$ ) with ( $P = 0.05$ ). In (Table-IV) the hemoglobin levels mean and standard deviation is given for each level of gravidity, in gravida 1 it is ( $11.25 \pm 1.5$ ), in gravida 2 its ( $10.52 \pm 1.23$ ) in gravida 3 ( $9.95 \pm 1.65$ ), in gravida 4 its ( $8.12 \pm 1.59$ ) and in 5 and above it is noted as ( $9.3 \pm 1.42$ ), As the parity increases the levels of Hb decreases.

Non Anemic Hb $\geq$ 11g/dl	Anemic Overall Hb<11	Mild (Hb10-10.9)	Moderate (Hb7-9.9)	Severe (Hb<7)
294(49%)	309(51.5%)	78(13%)	144(24%)	87(14.5%)

Table-I. Incidence of anemia in total population.

	No of Cases	Anemic	Mild (Hb10-10.9)	Moderate (Hb7-9.9)	Severe (Hb<7)
Primigravida	300	129 (43%)	36(12%)	64(21.3%)	29(9.6%)
Multigravida	300	180(60%)	43(14.3%)	79(26.3%)	58(19.3%)

Table-II. Anemia frequency in primigravida and multigravida n=600

Gravida	Hb	HCT	MCV	MCH	MCHC
Primigravida	11.45 $\pm$ 1.45	30.92 $\pm$ 4.2	80.24 $\pm$ 6.45	25.9 $\pm$ 2.56	30.58 $\pm$ 2.19
Multigravida	8.93 $\pm$ 1.66	24.2 $\pm$ 8.66	72.5 $\pm$ 10.5	23.75 $\pm$ 2.7	31.34 $\pm$ 2.5
p-value	<0.001	<0.001	<0.001	<0.003	<0.05

Table-III. Blood parameters of primary gravida and multigravida

Gravida	Haemoglobin Levels (gm/dL) Mean $\pm$ SD
1	11.25 $\pm$ 1.5
2	10.52 $\pm$ 1.23
3	9.95 $\pm$ 1.65
4	8.12 $\pm$ 1.59
5	9.3 $\pm$ 1.42

Table-IV. Hemoglobin concentration according to gravidity

## DISCUSSION

This potential study was conducted in order to discover that does parity has a damaging consequence on the incidence of anemia in pregnant population. Rendering the results the frequency of anemia in pregnancy at Civil Hospital, LUMHS, Hyd /Jamshoro, is 51.5%. which according to the WHO criteria is above the hazardous level, according to 1995–2011 reports the anemia in pregnancy prevalence was found 14.0% in developed countries and in Egypt its 42.0%<sup>8</sup> and far behind from economically developed population across the world like Macedonia where their prevalence is 26%<sup>9</sup> This high rate of anemia may not be surprising as when pregnant females were asked when asked mostly responded not taking any iron supplements during pregnancy.

In this study the anemia prevalence is increasing with parity, with primigravida women anemia of 43% whereas in multigravida it was observed as 60%. The results of this study does not coincide with another study done in Ethiopia<sup>10</sup>, where

primigravida were more anemic than multigravida females, the reason could be due too poor food availability, as most of females doesn't have iron stores prior getting pregnant. Whereas another study conducted in Qatar<sup>11</sup> shows that incidence of anemia is abundant in multiparous that is of 56%, the results coincides with this study.

The hemoglobin levels of primigravid females was (11.45 $\pm$ 1.45) when compared to multigravida (8.93 $\pm$ 1.66) was significantly high with a p value of <0.001. This value is more than the results obtained in 2011 from Sindh province which shows (7.89 $\pm$  1.33) in primiparous and (6.62 $\pm$  1.65) in multiparous pregnant females respectively.<sup>12</sup> On the other hand the values are extremely less than found in a study with average hemoglobin levels of 11 in multigravida conducted in 2016.<sup>13</sup>

The incidence of severe anemia in primigravida women was only 9.6 %. As compared to multiparous women which was 58%. In a study conducted in raichur India<sup>14</sup> incidence of severe anemia was 5.8 and 13.2 in primigravida and multigravida women respectively, whereas in a

study of Lahore<sup>15</sup> shown increase incidence of moderate anemia in pregnant females of 23.3%. In this study most of the sample size belong in the moderate (144) anemia division. Which does not coincide with a study of India<sup>16</sup> showing women with less than 2 year birth spacing develops severe anemia. Results from Farsi et al<sup>17</sup>, suggests incidence of mild anemia even with increasing parity.

Anemia in pregnancy related with high parity may have more chances to hemorrhage, until now no exact mechanism is found regarding this, some suggest there is decreased elasticity of uterine wall increased venous drainage to the lower part of the uterus, which may lead to uterine rupture.<sup>18</sup>

## CONCLUSION



It is concluded that high parity is risk for developing iron deficiency anemia in pregnancy, the incidence of anemia increases with the number of pregnancies. Multiparity is linked with adverse results for both mother and fetus, this condition should be prevented. in the community through effective family planning initiatives.

Copyright© 15 Oct, 2019.

## REFERENCES

- Stephen G, Mgongo M, Hussein Hashim T, Katanga J, Stray-Pedersen B, Msuya SE. **Anaemia in pregnancy: prevalence, risk factors, and adverse perinatal outcomes in Northern Tanzania.** *Anemia.* 2018;2018.
- Jahan T, M. Ishaq, Arif Siddiq, **Anemia in pregnant women,** *Professional Med J* 2017; 24(5):675-679.
- Saghafi N, Mihan S,FA, **Assessment of the prevalence of iron deficiency anemia in pregnant women referring to Ghaem Hospital.** *IJOGI* 2015;18(163):1-7.
- Chaza C, and SM-P, **Anaemia in expectant mothers presenting at Mabvuku Polyclinic Zimbabwe.** *Pathology and Laboratory Medicine* 2018; 2(2): 30-34.
- Lelissa D, Yilma M, Shewalem W, Abraha A, Age MW, **Prevalence of anemia among women receiving antenatal Care at Boditii Health Center, southern Ethiopia.** *Clinical Medicine Research.* 2015; 4(3):79-86.
- Haidar J. **Prevalence of anaemia, deficiencies of iron and folic acid and their determinants in Ethiopian women.** *J Health Popul Nutr.* 2010; 28(4):359-68.
- Bereka S, Gudeta A, Reeta M, **Prevalence and associated risk factors of anemia among pregnant women in rural part of JigJiga City, Eastern Ethiopia.** *J Preg Child Health* 2017; 4(3).
- Youssry M, Radwan A, MG, **Prevalence of maternal anemia in pregnancy: The effect of maternal hemoglobin level on pregnancy and neonatal outcome.** *OJOG* 2018;8(7).
- Rexhepi M, Besimi F, Rufati N, A Alili, J of M, **2019 Hospital-Based study of maternal, perinatal and neonatal outcomes in adolescent pregnancy compared to adult women pregnancy.** *Maced J Med Sci,* 2019; 7(5):760-6.
- Getaneh D, Bayeh A, Belay B, **Assessment of the prevalence of anemia and its associated factors among pregnant women in bahir dar city administration,** North-West Ethiopia, *J Preg Child Health* 2018, 5:2.
- Selim N, Al-Mass M, **Assessment of anemia, IDA and ID among pregnant in Qatar: Cross sectional survey.** *SM J Public Health Epidemiol.* 2016; 2(3): 1035.
- changF, Ahmed N SM. **Comparative study of hypochromic microcytic anemia in primigravida and multigravida in interior sindh.** *Med Forum* 2011; 22(12):67-71.
- Maghsoudlou S, Cnatingius S-Olof, **Maternal haemoglobin concentrations before and during pregnancy and stillbirth risk: A population-based case-control study.** *BMC Pregnancy and Childbirth* 2016; 16(135).
- Bh R, Patil P, Med JJ, **Multigravidity a major risk factor of anaemia in pregnancy and its comparison in primigravida women in raichur.** *-NJL,* 2017; 6(4)22-27.
- Ullah A, Sohaib M, Saeed F, **Prevalence of anemia and associated risk factors among pregnant women in Lahore, Pakistan.** *women and health* 2019;59(6).
- Gopinath S, Dhananjaya B, **Prevalence of anemia in pregnancy and its outcome in rural Tertiary Care Centre in India.** *Indian Journal of Obstetrics and Gynecology Research,* 2018; 5(1):104-108.
- Al-Farsi YM, Brooks DR, Werler MM, Cabral HJ, Al-Shafei MA, Wallenburg HC. **Effect of high parity on occurrence of anemia in pregnancy: A cohort study.** *BMC Pregnancy Childbirth* 2011; 11(1):7.
- Nayana Prabhu. **A comparative study to asses the outcome of grand multipara with that of great grand multipara.** *J of Evolution of Med and Dent Sci,* 2015; 4(08) 1360-73.

**AUTHORSHIP AND CONTRIBUTION DECLARATION**

Sr. #	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Tazeen Shah	Manuscript writng, paper design, data collection.	
2	Jamshed Warsi	Data analysis.	
3	Zulfiqar Laghari	Manuscript writing.	