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THE PREVALENCE AND RISK FACTORS OF ANAEMIA IN PREGNANT WOMEN

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ABSTRACT

OBJECTIVE: *To assess prevalence and identify risk factors for anaemia in pregnant women to highlight the importance of antenatal care regarding maternal health.*
METHODOLOGY: *A total of 263 women with haemoglobin less than 9 gm with gestational age between 12 weeks till delivery and singleton pregnancy were included in the study. Outcome measures were to see frequency of anemia, assess risk factors such as nutritional deficiency, use of recreational drugs (Manpuri, Pan, Chalia) acute and chronic blood loss, Pica(Rice, Multani Mitti, ice). Hb% was done at first visit and pre-designed proforma was filled by postgraduate trainee. Hb%, blood counts, peripheral blood film, MCV and MCHC estimations, Hb% electrophoresis (when needed) were used to evaluate types and severity of anaemia.*
RESULTS: *Total 263 women prevalence of anaemia after 12 weeks till delivery was 14%. Women were multipara 141(53.0%) and had birth spacing between 1 – 3 years in 70(26.6%). Iron deficiency anaemia was most common type of anaemia present in 208(79.1%). Risk factors Nutritional deprivation was common in 201(76.42%) women. Worm infestation was seen in 38(14.4%) women. Pica was seen in 52(19.8%) followed by Chalia in 40(5.2%), tobacco in 20(7.0%), Manpuri in 13(4.9%), 4(1.5%) used to smoke berri. In 126(47.9%) women Hb was between 7.0 – 8.9 gm%, with mean + SD 7.93+0.62, in 90(34.2%) women had severe anaemia <7gm% with mean + SD 5.40 + 1.08, and only 47(17.9%) women had mild anaemia 9-10.9 gm% with mean + SD 9.55 + 0.48.*
CONCLUSION: *Iron deficiency anaemia was common type of anaemia in pregnant women. Poor nutrition, frequent child birth with close birth spacing and unhealthy eating habits are responsible for iron deficiency anaemia.*

KEYWORDS: Iron deficiency, anaemia, risk factors

INTRODUCTION:
Iron deficiency anaemia is important public health problem for pregnant women, living in developing countries,[1] affecting 2/3rd of pregnant women and contributes to maternal morbidity and mortality and to low birth weight.[2] Multiparity, poor socio economical and educational statuses are the principal reason for high prevalence of anaemia in our population.[3] It is estimated that 20 – 50% of the world population is suffering from iron deficiency anaemia. Iron deficiency is believed to be most common cause of anaemia in pregnancy.[4] Iron deficiency anaemia does not only affect the mother but also has impact on cognitive and psychomotor function and anaemia in infant.[5]WHO classifies the countries with prevalence of anaemia higher than 40% as the countries where anaemia is a problem of public health significance.[6] It is defined by WHO as Hb less than 11gm in pregnancy, and is divided into three degrees mild (9.0 – 10.9gm %), moderate (7.0-8.9gm) and severe degree (<7.0 gm%)[7]. Anaemia is more common in women especially if they are young, poor, pregnant or members of an ethenic minority.[8] It is most common medical disorder in pregnancy related to increase maternal and perenatal morbidity, therefore antenatal care should be done for early detection and management.[9]
The prevalence, etiology and degree of severity vary in different populations, it is 35% for non pregnant women and 51% for pregnant women globally, and 3 – 4 times higher in developing countries.[10] In south Asia prevalence of anaemia among pregnant women is as high as 65%, in Indonesia prevalence of nutritional anaemia based on scattered surveys, is between 50% and 70%.[11] The effectiveness of primary level antenatal care in decreasing anaemia among pregnant women has a important role. Ensuring and adequate

supply of drugs and eliminating risk factors to achieve safe Hb levels in pregnant women plays an important part, but even active antenatal program has limited affect when is highly prevalent and booking is late.[12] Increasing number of pregnant women with anaemia were attending antenatal clinic as well as admitting through causality with various complications therefore this study was done to determine the frequency of anaemia and its related complications so that some measures should be taken to reduce the frequency and its related complications.

METHODOLOGY:

The study was carried out at gynae unit I of Liaquqat University Hospital from 1st July 2007 to 30th June 2008. All pregnant women admitting through out patient department or casualty after 12 weeks of gestation till delivery, carrying singleton pregnancy with Hb < 10 gm were included in the study. We assessed prevalence of iron deficiency anaemia and associated risk factors in women. Women before 12 weeks, multiple pregnancies, Hb% 11 or more were excluded from the study. Anaemia was defined according to WHO criteria i.e. Hb < 11 gm /dl.

Complete blood count was performed to assess the severity and type of anaemia and was repeated after treatment to see the response to treatment. Hb% levels were measured at first visit. The information was recorded by taking detailed history to assess risk factors leading to anaemia such as nutritional status (by asking daily intake of at least one glass of milk, one pao meat, three fruits and one pao vegetable), parity, birth spacing, family planning method users (coitus interruptus, IUCD, condoms, oral pills) and non users, infection, bleeding from any site, use of recreational drugs such as Manpuri, Pan, Chalia, habit of Pica, thorough clinical examination and relevant investigations such as stool DR for three consecutive days and urine DR were performed. Hb electrophoresis, serum ferritin, serum iron levels were done, only in few selected cases because majority of women were not able to bear the cost because of poverty.

DATA ANALYSIS:

The data was evaluated in statistical program SPSS version 16.0. Simple frequency and percentage of categorical variables such as parity, types of admission were calculated. Mean + Standard deviation of continuous parameters such as age (in years), gestational age, haemoglobin, MCV and MCHC were calculated and they were categorized by using recode option in SPSS to determine the frequency and percentage on 95% confidence interval. No any statistical test was applied.

Table 1.

DEMOGRAPHIC PROFILE OF THE PATIENTS

(N = 263)

Parameters	**Mean + SD(Range)**
Age (in years)	28.63+5.38, (16 – 50 years)
Gestational age (in weeks)	32.65+5.48(12 – 40 weeks)
	n(%)
Parity:	
Primi Gravida	63(24.0%)
Multi Para	141(53.0%)
Grand Multi Para	59(22.4%)
Birth spacing	
< 1 year	70(26.6%)
1 – 3 years	163(62.0%)
> 3 years	30(11.4%)
Family planning method:	
Users	56(21.29%)
Non-users	207(78.70%)
Types of admission:	
Booked	70(26.6%)
Un-booked	193(73.4%)

Table 2.

Distribution of patients according to severity of anaemia

(n = 263)

Variable	**n = 263(%)**	**Mean + SD(Range)**
Haemoglobin(> 11gm%):		
Mild (9.0 – 10gm %)	47(17.9%)	9.55 + 0.48(9.0 – 10.8)
Moderate (7.0 – 8.9gm %)	126(47.9%)	7.93 + 0.62(7.0 – 8.9)
Severe (<7.0gm %)	90(34.2%)	5.40 + 1.08(3.0 – 6.9)
MCV (83 – 97 fl):		
Low (< 83fl)	167(63.4%)	70.07 + 11.74(37.1 – 108.3)
Very low (< 60 fl)	90(34.2%)	53.72 + 4.48(46.0 – 59.0)
High (> 100 fl)	06(2.28%)	103.6 + 2.87 (100 – 108)
MCHC (32 – 36 gm%):		
Low (<32gm%)	242(92.0%)	28.88 + 2.90(20.7 – 32.0)
Normal (32 – 36gm%)	21(8.0%)	33.93 + 1.17(32.5 – 35.0)
Haemoglobin A_2 (1.3 – 3.5%):		
High(> 3.5%)	21(7.98%)	3.80 + 0.14(3.6 – 4.0)
Normal (< 3.50%)	242(92.0%)	2.69 + 0.69(1.20 – 3.50)

RESULTS:

Out of 1880 women were admitted in obstetrical ward, 263 women fulfilled the inclusion criteria. The prevalence of anaemia pregnant women after 12 weeks till delivery was 14%. Mean age of the women with anemia was 28.63 years. Majority of women were multipara 141(53.0%), 63(24.0%) were primigravida. Adequate birth spacing was lacking in our women, majority of them had birth spacing between 1 – 3 years, 70(26.6%) women had even spacing of less than 1 year, only 30(11.4%) women out of 263 had birth spacing more than 3 years. Fifty six (21.29%) used family planning methods, coitus interruptus by five 8.9%, IUCD by nine 16.07% condoms by thirty 53.5%, none use oral pills. Among them 44(78.57%) were from urban area and 12(21.48%) from rural area. This shows less use of family planning method particularly by women of rural areas. There was no difference in grade of anaemia between users and non users. Lack of

antenatal checkup was seen in our women, only 70(26.6%) were booked, 193(7304%) were un-booked. Mean gestational age at first visit was 32.65 weeks. (Table No. 1)
Two major types of anaemia were iron deficiency anaemia identified in 208(79.1%) followed by â thalasemia trait in 21(8.0%) out of 263 pregnant women. was the most common type of anaemia in our women. It was present in 208(79.1%) out of 263 pregnant women. Megaloblastic was diagnosed in 6(2.3%).
Complete blood count and peripheral smear shows that in 126(47.9%) with mean + SD 7.93 + 0.62 Hb was between 7.0 – 8.9 gm%, 90(34.2%) with mean + SD 5.40 + 1.08 had severe anaemia (<7), only 47 (17.9%) with mean + SD 9.55 + 0.48 had mild anaemia(9-10 gm)
MCV was < 83 fl in 167(92.0%) women and it was very low < 60 fl in 90(34.2%) and in 06(2.28%) it was > 100 fl. Haemoglobin A_2 was > 3.5% in 21(7.98%). (Table No. 2)
Risk factors Nutritional deprivation was common in 201(76.2%) women. Acute blood loss due to placenta previa and abruption was seen in 26(9.9%) women. Only 6(2.3%) out of 263 women gave history of chronic blood loss in the form of heavy menses or bleeding per rectum. Worm infestation was confirmed by stool DR in 38(14.4%) women. Malarial parasite was positive in 28(11.0%). Consumption of Multani Mati and pica was seen in 52(19.8%) followed by Chalia in 40(5.2%), tobacco in 20(7.0%), Manpuri in 13(4.9%), Nas 10(3.8%), Naswar in 2(0.8%), Pan 3(1.1%) only 4(1.5%) used to smoke berri. Chronic medical illness such as viral hepatitis, tubercolosis, urinary tract infection, cardiac disease was present in 10(3.8%) out of 263 patients. (Table No. 3)

Table 3.

Percentage of participants with positive Risk Factors

(n = 263)

Risk factors:	n(%)
Nutritional deficiency	201(76.4%)
Acute blood loss	26(9.9%)
Chronic blood loss	06(2.3%)
Warm infestation	38(14.4%)
Pica(Multani mitti, rice, ice, earth mitti)	52(19.8%)
Chalia	40(5.2%)
Tobacco	20(7.0%)
Manpuri	13(4.9%)
Nas	10(3.8%)
Naswar	02(0.8%)
Pan	03(1.1%)
Smoking (Berri)	04(1.5%)
Chronic medical illness	10(3.8%)

DISCUSSION:

In developing world, current strategies to prevent and correct anaemia and iron deficiency in pregnant women have met little success.[13]
Our study revealed iron deficiency anaemia the most common type of anaemia in pregnant women followed by thalasemia.
Multipara was a most common group who had anaemia, however in contrast study of GN. OKWU shows no significant relation of parity with mean haemoglobin level as well as prevalence of anaemia.[14] In this study total 1387 pregnant women were selected, 910 in urban area and 477 in rural areas at Nigeria. In the same study in Nigerian community they found that in women with child birth spacing of less than 1 year and between 1 – 5 years had significantly lower haemoglobin and high prevalence of anaemia. Similar observations were made in our study where is anaemia was common in women with birth spacing of 1 – 3 years or less than 1 year.[15]
Two large studies with industrial world, involving over one million pregnancies clearly indicated that favourable pregnancy outcomes are less frequent among anaemic mothers.[15,16] Our data showed association of maternal anaemia in pregnancy with nutritional deficiency habit of pica, pan, chalia, tobacco, acute and chronic blood loss and chronic medical disorders. Pica is the compulsive eating of non nutritive substances and can have serious medical problems. It is observed in low socio economic group. Some recent evidence support pica with the obsessive compulsive spectrum of disorders.[17] Published data revealed its prevalence between 8% to 65% and in laten America it is 23 – 44%, they are frequently associated with iron deficiency anaemia.[18] Our study revealed that 52(19.8%) out of 263 had habit of pica and these all women they belong to low socio economic group. Since our study was done at tertiary care unit and majority women delivered at home, therefore complication related anaemia are more outside the hospital setting.
Maternal Hb% was not associated with prematurity in our study. It is in contrast to the study done at Rawalpinidi hospital by Umber Jalil who showed 62 out of 402 anaemic women had premature delivery.[19]
Mean maternal age recorded was 28.63years which is similar to the study done at Railway hospital Mulltan where mean maternal age was 30.24+ 6.15 years so anaemia is more prevalent in reproductive age.[3]
Out result showed iron deficiency anaemai in 208(79.1%) out of 263, followed by â thalasemia trait in 21(8.0%) out of 263 women. Similar results were obtained by major Adiba where iron deficiency anaemia was observed in 41.6% and thalasaemia in 4.8% out of 500 women[10] similar results by Singh K who found iron deficiency anaemia in 464 (81.3%) out of 571 anaemic women.[20]
Most of the anaemic patients in our study had moderate anaemia seen in 126(47.9%) women with mean + SD 7.93 + 0.62, mild anaemia in 47(17.9%) with mean + SD 9.55 + 0.48, sever anaemia was seen in 90(34.2%) with mean + SD 5.4 + 1.08.
It is in contrast to the study done by Geelhoed D where no case of severe anaemia was noted.[21]
In other study of South Eastern Nigeria and Ibadan, western Nigeria also no case of severe anemia was noted.[9, 22]
Severe anaemia in our study reflects poor antenatal care and poor health and health awareness in our population. The most common associated condition was nutritional deficiency followed by worm infestation seen in 38 (14.4%) out of 263 women. Similar observation was made in survey by Ritsuko Aikawa in Vietnam where they found that warm infestation by Hook Worm and A. Lumbricoits was associated with increased risk of iron deficiency anaemia[23] so in addition to anthelmintic drugs, attention should be given to provision of clean water and hygienic sanitation.
Observation made by Aluka C at Abia state

teaching hospital where nutritional deficiency was most common followed by Malaria as associated condition.[22]

Poor nutrition specially in women is a common factor for anaemia in our population eating eggs or meat even once a week was not seen in our study.

Changes in eating habits is common in pregnancy in our study 52(19.8%) have pica. Majority 40(15.2%) had habit of eating Chalia (beetle nut) followed by Tobacco seen in 20(7.6%) out 263 women. It may be one of the important factor contributing to anaemia by interfering with iron absorption and keeping poor maternal health. Similar observation was made by Baig Ansari in urban area of Hyderabad where he found consumption of clay of dirt, tea, poor nutrition (low intake of egg or red meat) were associated with anaemia.[2] In another study of Gautamn VP in India, the intake of calories, protein, iron, folic acid was less than recommended dietary allowance.[24]

CONCLUSION:

Our study concludes that iron deficiency anaemia is the common type of anaemia in pregnant women followed by â thalasemia minor. Poor nutrition frequent child birth with close birth spacing and unhealthy eating habits are responsible for iron deficiency anaemia. Therefore awareness among female population of the community should be done through mass and print media regarding reasons, its affects, and prevention of anaemia.

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