

ORIGINAL ARTICLE

ANAEMIA: THE NEGLECTED FEMALE HEALTH PROBLEM IN DEVELOPING COUNTRIES

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Background: Anaemia is arguably the biggest female health problems in developing countries. The world is still to fully fathom the extent and gravity of the problem. This problem aggravates particularly during and after pregnancies due to increased nutritional demands and inadequate iron supply and is therefore more widespread in parous segments of female population. Objective of this study was to determine prevalence of anaemia in apparently healthy parous female population of Abbottabad and investigate underlying causes. **Methods:** This descriptive, cross-sectional study was conducted from October 2001 to March 2011 in Abbottabad. Women reporting for various surgical procedures were investigated for anaemia by obtaining history through a structured performa, specifically designed to identify the underlying causes. Sixteen thousand women of child bearing age (20–40 years) were included in the study; 14,800 with history of at least one pregnancy and remaining with no previous pregnancy. Haemoglobin (Hb) was measured using haematology analyser Sysmex (KX21). **Results:** Of the screened women, 60% were found anaemic (Hb <12 g/dl) 10% of which were severely anaemic (Hb <6 g/dl). Anaemia was related to socio-demographic and obstetric history characteristics. The prevalence of anaemia was significantly lower in women who used iron supplements during their pregnancies. Lactating mothers not making up for the iron deficiencies during pregnancies usually carried their anaemia postpartum and beyond. Lower gaps between pregnancies also contributed significantly to the problem. **Conclusion:** Prevalence and severity of anaemia in reproductive age females reporting to surgical units were found to be exceptionally high. Frequency of anaemia in the parous females of relatively affluent city of Abbotabad indicates that anaemia may be on the rise in developing countries. Addressing pregnancy related anaemia and nutritional deficiencies through intake of supplements on regular basis in women before and between pregnancies is essential.

Keywords: Anaemia, Reproductive age, nutritional deficiency, parous, Lactation

INTRODUCTION

Anaemia is considered one of the main nutritional deficiency disorders affecting a large fraction of the women population. According to World Health Organization (WHO), anaemia is a major public health problem which is at its peak in developing countries.¹ The pattern of anaemia in Pakistan and other Asian countries indicates that it is an area of public health needing urgent attention.

In Pakistan reproductive age women frequently develop anaemia after delivery/lactation and Gynaecologists are unable to control the drop of haemoglobin (Hb) during antenatal and postnatal period. We chose anaemia for focus after realising that a large number of reproductive age women visiting surgeons with different pathologies had anaemia which prevented their surgery/treatment.

Available literature deals at length with the causes of anaemia among women.^{2,3} Iron deficiency anaemia (IDA) is cited as the most common cause of anaemia in women of childbearing age worldwide² and was also found the most prevalent type of anaemia in Abbottabad.⁴ Therefore we started this study to determine the frequency of IDA in apparently healthy

female population of reproductive age in Abbottabad and its suburbs.

MATERIAL AND METHODS

This descriptive, cross-sectional study was conducted in Abbottabad, a relatively less poverty stricken city in Hazara Division from Oct 2001 to Mar 2011. The study included patients belonging to all socioeconomic groups.

Sixteen thousand women of childbearing age (20–40 years) were included in the study; 14,800 with history of at least one prior pregnancy and remaining 1,200 with no previous pregnancy. Haemoglobin was measured using haematology analyser Sysmex (KX21). The WHO standard Hb level of 12 g/dl was used as benchmark.¹ Women with Hb level more than 12 were not interviewed.

Anaemic women were further investigated to determine the underlying causes of anaemia by haematological and biochemical tests. The ethical values were thoroughly observed. The relevant demographic and socioeconomic information, dietary habits, and previous medical history etc. were recorded on a structured performa, filled with patients' consent while interviewing them for obtaining history.

RESULTS

Majority (67%) of the women recruited were from the age group of 30–40 years. Data showed that 9,600, i.e., about 60% were anaemic (Hb <12 g/dl) and 1,600, i.e., 10% were severely anaemic (Hb <6 g/dl). Demographic distribution and summary of history fact sheets are respectively depicted in Table-1 and 2.

The prevalence in 9,600 anaemic women of various attributable causes like poor nutrition, pregnancy, menstrual disorders, fibroids, abortion, GI bleeding, worm infestation, blood diseases, piles etc. is depicted in Table-3.

Prevalence of anaemia was found to be directly related to poor multiparous females. However, its prevalence was found significantly lower in women who used iron supplements during pregnancies.

Table-1: Demographic distribution

| Characteristics | Range/Group | Number | % |
|----------------------|---------------|--------|-----|
| Age group | 20–30 Years | 5,280 | 33% |
| | 30–40 Years | 10,720 | 67% |
| Residence | Urban | 8,800 | 55% |
| | Rural | 7,200 | 45% |
| Education | School level | 9,600 | 60% |
| | College level | 6,400 | 40% |
| Socioeconomic Status | Lower class | 9,600 | 60% |
| | Middle class | 4,800 | 30% |
| | Upper class | 1,600 | 10% |
| Anaemia | ≤12 g/dl | 9,600 | 60% |
| | <6 g/dl | 1,600 | 10% |

Table-2: Facts sheet compiled from questionnaire (n=9,600)

| | Number | % |
|-------------------------------|--------------------|-----|
| Feeling of Fatigue/tiredness | 8,448 | 88% |
| Feeling of weakness/dizziness | 7,584 | 79% |
| History of palpitation | 7,776 | 81% |
| Feeling of breathlessness | 8,544 | 89% |
| Irritability | 4,512 | 47% |
| Previous history of Anaemia | 4,800 | 50% |
| History of last blood test | Pregnancy/accident | |

Table-3: Classification of anaemic women according to contributory factors

| Cause | Number | % |
|------------------------------------|--------|-----|
| Intake of Iron supplements | 2,016 | 21% |
| Pregnancy | 3,840 | 40% |
| Abortion | 2,208 | 23% |
| Poor Nutrition | 6,912 | 72% |
| Interval between pregnancies < 3yr | 6,720 | 70% |
| Multiparity (>3) | 5,856 | 61% |
| Blood loss (Menses, Fibroids) | 1,440 | 15% |
| Antenatal check ups | 3,072 | 32% |
| Postnatal checkups | 2,688 | 28% |
| Breast feeding | 8,640 | 90% |
| Malaria | 3,072 | 32% |
| Worm infestation | 1,824 | 19% |
| GI bleeding | 1,248 | 13% |
| Piles | 1,600 | 10% |
| Blood dyscrasias | 320 | 2% |

DISCUSSION

Women are considered more susceptible to anaemia the world over. However its prevalence in Pakistani women is far more widespread. Previously it was found that overall, more than one fifth of women in Pakistan suffered from anaemia.⁵ However, with ever increasing population being pushed below the poverty line, the problem may have greatly exacerbated. It should therefore be a priority research area in Pakistan.

The iron deficiency is more likely to occur at certain times in life such as adolescence, pregnancy, and breastfeeding. Women of childbearing age are therefore, at greatest risk of developing anaemia because they have the greatest need for iron. We chose this segment of females for focus with a view to re-assess the extent of the problem in child bearing age females. The idea was to investigate the main underlying causes of anaemia and to assess more carefully, the local etiological factors that are responsible so that new strategies for prevention and treatment could be designed.

Study conducted in 1987 had placed the prevalence of anaemia in young women at 30%⁶, while a recent study from Karachi indicates its increased prevalence to 43.36%⁷. Our study is similar to this study but due to large subject size our study is more authentic and we also notice increase in prevalence of anaemia from 43 to 60% with 10% severely anaemic women unlike the results of the study conducted in another city of Pakistan indicating 2% severely anaemic cases.⁸

An earlier study in Pakistan had documented iron deficiency as the leading cause of anaemia in pregnancy.⁹ If the rate of anaemia is low among non-pregnant women in the same segment of population, one could assume many of these could be prevented by correcting maternal anaemia. The need for iron doubles during pregnancy due to an increased blood volume and the growth of fetus.¹⁰ WHO estimates that anaemia affects nearly half of all pregnant women in the world: 52% in developing countries compared with 23% in the developed world.¹

Pregnant (and consequently lactating) women are amongst the highest groups at risk for iron deficiency. Those pregnant for the first time are at greatest risk of developing anaemia.¹¹ Anaemia occurs with such frequency during pregnancy that it is referred to as ‘the most common medical complication of pregnancy’. The high prevalence of iron and other micro-nutrient deficiencies among women before and during pregnancy calls for interventions such as periodic supplementation.¹²

On analysis of the sizeable data collected over a long period of time, it was found that anaemia is linked with common causes as expected (Table-3). We

found in our study that only about 30% of females had a habit or opportunity of having balance diet which meets daily iron requirement. The remaining 70% tend to sacrifice personal diet for their other family members. They prefer to serve eggs, meat, Dairy products and fruits to the male population of their families and usually use tea themselves. Tea consumption and low intake of red meat are associated with anaemia.¹³

Many nutritional experts believe that vitamin C also plays an important role in prevention of anaemia. Ascorbic acid or vitamin C, present in fruits and juices helps iron absorption.¹⁴ We found that in majority of the cases, low intake of vitamin C is also linked with anaemia.

On inquiring about their intake of iron supplements and multivitamins it was noted that only 20% women used to take them on a regular basis. Certainly, iron supplements improve the iron status of the mother during pregnancy and during the postpartum period, even in women who enter pregnancy with reasonable iron stores.¹⁵ The advisability of routine iron supplementation during pregnancy, regardless of whether the mother is anaemic, has been heavily debated in the United States. Pregnancy is a time when iron absorption is particularly efficient and iron supplements have a very important role during antenatal period.

After evaluating their histories of antenatal checkups it was found that only 30% had antenatal checkups during their pregnancies. Same was the case with postnatal checkups. Although another study demonstrated 90% prevalence of anaemia in pregnancy in women attending antenatal clinics at a tertiary care hospitals of Pakistan¹³, ruling out the efficient role of antenatal checkups and indicating weak role of Gynaecologists to control anaemia. We believe that Gynaecologists can play a very important role during antenatal/postnatal period, when there is usually more opportunity to provide, encourage, and monitor the use of supplements and proper food.

Due impending blood loss that occurs during childbirth, the demand for iron increases about six to seven times from early to the late pregnancy and there is always inadequate replacement of loss. Negligence, either by health practitioner or by the patient herself also contributes significantly to anaemic female population.

About 70% of the women were found conceiving again within 2 years after their last delivery. With these closely spaced pregnancies, improved postpartum maternal iron status may become especially important so that the supplemented mother enters subsequent pregnancy with better iron status. Previous literature has shown that high parity and multiple gestations are the important causes of anaemia.^{16,17}

According to Galloway *et al* the main reason of anaemia is women's non-compliance with taking daily iron supplements.¹⁸ We found that compliance levels with iron supplements are low due to gastritis. About 90% of the women were having mild to moderate gastric discomfort with iron, so they avoid taking iron. An important cause of gastritis in this population is over-use of anti-inflammatory drugs such as aspirin or ibuprofen, as these can cause blood loss through irritation of the digestive tract and consequent bleeding. Galloway also reported that inflammation of small intestine may result in diarrhoea, poor absorption of dietary iron, and iron depletion.¹⁸

Out of total anaemic cases 20% were having worm infestation. We suggest that in the antenatal clinics the health education should include causes of anaemia with emphasis on helminthes infestations specifically the mode of transmission and prevention of hookworm infestations. These infections produce a high degree of long-term morbidity by causing iron deficiency anaemia.¹⁹

Malaria has a range of manifestations but malaria-related anaemia is one of the leading causes of death, with pregnant women being the most affected.¹⁹ We found that about 15% cases were anaemic due to malaria.

During our study about 10% cases of piles were found and 2% cases were found anaemic due to genetic disorders (Sickle cell, ITP, Thalassemia). These genetic diseases result in anaemia, with need for transfusions of red blood cells.¹⁹

Although it may be critical in some cases that the underlying cause for the anaemia be uncovered for appropriate therapy to be instituted. However, in general we strongly recommend development of national strategies to improve the overall health and nutrition status of adolescent girls before they enter their reproductive years. A highly significant association between the mother's age, parity, diet pattern and socioeconomic status was found in this study. Our study reinforces that women of childbearing age should be provided nutritional education regarding food sources of iron, especially prior to becoming pregnant, and taught how food choices can either enhance or interfere with iron absorption.

CONCLUSION

Anaemia is a neglected problem and needs to be dealt with on priority basis. Routine iron supplementation should be given to women of childbearing age in general, and during pregnancy and postpartum in particular, to cover losses during delivery and lactation. Obstetricians have an important role to play by making women aware of the iron content in a balanced diet and motivation for iron supplements especially during their reproductive age.

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