Persisting high magnitude of anaemia in Women of Reproductive age

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Abstract

Background: Despite several steps taken by governments, anaemia remains a major cause of ill health in women globally, maybe it is increasing.

Objectives: Study was done to know magnitude of anaemia in women of reproductive age (WRA, 15-49 yrs) with mission of services.

Materials and Methods: It was institution based prospective study for knowing magnitude of anaemia in WRA. Study was carried out over 9 months in Obstetrics & Gynaecology, after approval of ethics committee of institute. Study subjects were non-pregnant women of 15-49 years of age who reported to hospital with various disorders, but did not have any disorder which could have been responsible for anaemia. Patients’ friends, relatives who volunteered to be part of study were also included. Women with known bleeding disorders, or obvious causes for anaemia like menorrhagia, piles, chronic diseases were not included. Pretested tool was used. As per inclusion criteria women from regular counter of obstetrics gynaecology outpatient. were directed to research assistant.

Results: Adolescents had maximum burden of anaemia, 76.15%, followed by 69.45% among women of 20-34 yrs, 65.21% in women of 35-49 yrs age. Severely anaemic were 2.02% among adolescents, 0.44% of 20-34 years , 0.27% among of 35-49 yrs. As expected, highest numbers were amongst women of low socio-economic class and illiterate.

Conclusion: Around seventy percent women of reproductive age with no obvious cause were anaemic, more of adolescents. It is essential that in depth studies are done about available food, eating habits, as anaemia continues to kill many mothers during pregnancy, birth, postbirth and affects baby too.

Keywords: Anaemia; Reproductive Age Women; No Obvious Cause

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Background

Despite several steps taken by governments, anaemia remains a major cause of ill health in women.WHO [1] had earlier suggested that anaemia be defined as a ‘state in which haemoglobin was compared to values adjusted for a particular age and sex’. However, this definition did not become popular. Currently haemoglobin less than 11 gms / dl is considered anaemia. Based on haemoglobin level, anaemia has three grades, mild ≥9 to <11, moderate ≥ 7
Persisting high magnitude of anaemia in Women of Reproductive age

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OJGOR: December-2019: Page No: 65-71

Women become anaemic more often due to gender effects like menstruation, pregnancy, child birth, nutritional deficiencies in pregnancy, or disorders like abnormal uterine bleeding due to various reasons, in addition to other problems like bleeding piles, worm infestation, chronic diseases such as tuberculosis, cancers etc which can occur in women as well as men. The nutritional deficiency could be of one or several nutrients. Main nutrients involved in the synthesis of haemoglobin are iron, folic acid, and Vit B₁₂ which ideally should be sufficient in every day meals. But this does not seem to be happening. Despite all the efforts of various stakeholders, deficiencies continue and deficiency of any one or all continue to lead to various types and degrees of anaemia because many social issues also affect anaemia specially in low and low middle-income countries.

Objectives

Study was done to know the present-day magnitude of anaemia in women of reproductive age (WRA) (15-49 yrs) with mission of services.

Materials and Methods

It was institution based prospective study for knowing the magnitude of anaemia in women of WRA. The study was carried out over 9 months in the department of Obstetrics & Gynaecology, after approval of ethics committee of the institute. A pretested tool was used. As per inclusion criteria, women from regular counter of Obstetrics Gynaecology outpatient were directed to anaemia study area. Study subjects were non-pregnant women out of those who reported to obstetrics gynaecology outpatient for some or other ailments. Women with disorder which could have caused anaemia were not included. Patients’ friends and relatives who volunteered to be part of the study were also included after their consent and checking inclusion and exclusion criteria. Those women with known bleeding disorders, or obvious causes for anaemia like menorrhagia, piles, and chronic diseases were not included. Before collecting information, consent was taken. General demographic features were recorded. Each woman was informed about the study and possibility of assistance if found anaemic. Finger prick collection of blood for haemoglobin estimation was done by using Tallqvist haemoglobin scale.

Results

Thirteen hundred and thirty non-pregnant WRA, little more than study sample needed, who were eligible as per inclusion criteria were included after consent to participate in the study. Out of 1330 women 909 (68.7%) had anaemia though they had no obvious disorder responsible for anaemia. Overall 904 (68.3%) were found to be moderately or mildly anaemic (Hb between ≥7-<10.9 gm/dl) and 5 (0.4%) were severely anaemic (haemoglobin less than 7 gm/dl). Severely anaemic women were immediately referred for further investigations and necessary treatment, irrespective whether they were patients or volunteers. Mildly and moderately anaemic, especially moderately anaemic were also advised the need of more investigations and therapy but this aspect was not part of the study. Among all the adolescents tested more were anaemic, 76.15%, followed by, 69.45% amongst women of 20-34 yrs tested and 65.21% amongst women of 35-49 yrs age. Among adolescents, 82.83% were mildly anaemic 15.15% moderately anaemic, 2.02% severely anaemic and only 23.85% were nonanaemic. Overall of 69.45% young women 81.73% were mildly anaemic, 17.83% moderately, 0.44% severely anaemic and only 23.85% were nonanaemic. Among women of 35-49 yrs, 65.21% women were anaemia, 78.88% mildly anaemic, 20.85% moderately and 0.27% severely anaemic and 34.79% nonanaemic. Of 1330 subjects, 725 were from lower middle economic class, 506 from lower economic and 99 from middle economic class [2]. Of 506 women from low economic status, 29.24% were nonanaemic, 70.76% anaemic (77.37% mildly anaemic, 22.07% moderately and 0.55% severely anaemic). In low middle economic class to 70.75% were anaemic, most (82.88%) had mild anaemia, 16.5% moderate...
0.62% severe anaemia and 33.15% were non-anaemic. In middle economic class 66.67% were anaemic 87.87% mildly anaemic, 12.13% moderately anaemic and no one had severe anaemia.

Of 1330 anaemic women, 95 had primary school education, 150 had middle school, 772 high school, 157 had done graduation and 56 had done postgraduation, but 100 were illiterate too. Anaemia was detected in 62% women with primary school education, 72.15% in high school pass, 63.05% in graduates, 53.6% among those with postgraduate degrees and 82.1% in illiterates. Overall number of women with mild anaemia ranged from 72 to 87% with mean of 80.85% among all educational classes, 18.85% had moderate anaemia and 0.55% severe anaemia.

Of 1330 screened women, 393(29.54%) were nulliparous and the rest had given birth to one or more babies, 167 had one birth, 469 two (P2), 211 three (P3), 68 four (P4), 14 five (P5) and 8 had six births (P6) too. Highest number of anaemia cases were in those with no birth or one birth, 69.1% (82.17% mild, 17.5% moderate and 0.77% severe anaemia) as many were adolescents, in those with 2 or 3 births 62.22% (79.82% mild, 19.74% moderate and 0.42% severe anaemia) were anaemic (Table I).

Overall among 909 anaemic women, 79 (8.73%) had low backache, 181 (20.02%) had pain abdomen, 19 (2.10%) had oligomenorrhea, 263 (29.09%) generalised weakness & 25 (2.76%) had infrequent menstruation, but not heavy. Fifty-two (5.75%) women had symptoms which seemed to be due to urinary tract infection (UTI), 40 (4.42%) general malaise, 50 (5.53%) dysmenorrhoea, 5 (0.55%) giddiness, 19 (2.10%) infertility, 106 (11.72%) leucorrhoea and 3 (0.33%) urticaria. Amongst 421 non anaemic women, 15 (3.56%) had amenorrhoea, 24 (5.70%) low backache, 9 (2.13%) headache, 107 (2.5%) oligomenorrhoea, 89 (21.14%) pain abdomen, 29 (6.88%) symptoms related to UTI, 17 (4.03%) dysmenorrhoea, 4 (0.95%) general malaise, 14 (3.32%) infertility, 4 (0.95%) irregular menstruation but not heavy, 74 (17.57%) leucorrhoea, one (0.23%) urticaria and the rest had generalised weakness (Table II). Over all around 55% women had complaints which could be linked to anaemia. Probably the main sickness diluted the symptoms of anaemia, in those who came with disorders. All 126 relatives or friends who became part of study subjects had fatigability and other such symptom.

**Discussion**

Stevens [3] reported maternal anaemia is an important global health problem that affects about 500 million women of reproductive age. Globally Iron-deficiency anemia is one of the most severe nutritional deficiency disorders in the world [4]. It affected populations of poor as well as rich countries [5]. Though the numbers are more in low income countries (LIC), due to various reasons, anaemia is not uncommon in developed countries too. Due to the reduced concentration of haemoglobin, the transport of oxygen to the body tissues is compromised, causing changes in the skin and mucosa, with consequent paleness, glossitis, fatigue, weakness, palpitation, reduced cognitive functions and delayed growth and psychomotor development in all stages of life. The immune system, physical and professional performance are negatively affected. A lot is known about the consequences of anaemia during pregnancy, with increased risk of low birthweight, preterm births, perinatal mortality and neonatal mortality [3,6]. Maternal anaemia also places the mother at increased risk of death during and after childbirth [7]. It was estimated that of 1.62 billion people in the world with low levels of haemoglobin, 30.2% were non-pregnant adult women. The significance of the condition was severe in Africa (47.5%) and in Southeast Asia (45.7%), moderate in the Eastern Mediterranean (32.4%) and in the Western Pacific (21.5%), and mild in the Americas (17.8%) and Europe (19.0%) [5]. In Brazil, the most recent national data showed 29.4% of WRA having anaemia [8]. Osorio [9] reported that iron-deficiency anemia was the result of
multiple factors that could co-exist in individuals. Socioeconomic, cultural, environmental, dietary, physiological, pathological, nutritional and biological factors affected the numbers. Among the studies conducted in WRA, a statistically significant association was revealed between the occurrence of anemia and black skin [8,10], unfavourable socioeconomic status [11,12] and many other factors, have been linked [13]. WHO [14] reported that about one-third of the global population (over 2 billion) (adolescents and WRA) was anaemic? Anaemia is one of the most common nutritional disorders in India where it is the most widespread nutritional problem [15]. Earlier demographic health survey revealed that 27% of WRA were chronically malnourished and about the same proportion suffered from anaemia with significant regional variations [16] (EDHS 2005). National Family Health Survey (NFHS III 2005-06) revealed anaemia in55.3% of WRA of India [17]. Present findings of around 70% women of WRA is a matter of serious concern, especially because numbers were highest amongst adolescents. The economic and social consequences of anaemia, yet un-quantified, are thought to be enormous including a significant drain on health care, education, resources, labour productivity and reduced physical and mental capacity of large segments of the population. Although the most important determinant of anaemia is poor bioavailability of dietary iron in most developing countries. The etiology of anaemia in India is not well established because large proportion of population lives with low economic resources. It results into shortage of minerals and vitamins implying that the bioavailability of much of the iron in the average Indian diet of big population is restricted, affecting the iron status. Iron is essential for haemoglobin. Haemoglobin is necessary for transporting oxygen to organs in the body. When haemoglobin levels are low the reduction in oxygen available to organs is responsible for many of the symptoms experienced by anaemic women. The highest percentage of anaemia among adolescents in the present study may be because of food habits, in addition to the phase of puberty, growth spurt, with increasing demands of iron, for the expansion of cellular mass and growth of tissues, as well as menstrual loss, with a direct influence on metabolism and the need for iron. If demand is not met, anaemia results. This is added by life style or other contributory factors, busy school schedules which keep them deprived of timely and enough meals, develop wrong food habits such as fast food etc and more in-depth studies are needed. Bharti and Chaudhary [18,19] reported adolescents and 20-25 having more chances of anaemia. Haider [20] found maximum anaemic women between 31-49 years. Sabah [21] reported peak numbers of anaemia in women of 40-45 yrs age, however, they had included women with disorders too, which could directly be responsible for anaemia. In the present study all such cases were excluded and still 65 to 75% women were anaemic, more so adolescents, or who were from low economic status or illiterate.

Recent studies in different parts of India have revealed that age, educational level of the women, socioeconomic status, and inadequate intake of green leafy vegetables and pulses, increased parity, and narrow birth spacing were the significant predictors of anemia among WRA [22,23]. While anemia is a major contributor to morbidity and mortality among WRA, progress towards reducing the burden of anemia has been little despite efforts through decades. Researchers found that socioeconomic factors, and social neglect, diet and nutrition related factors, lack of personal hygiene, and worm infestation contributed to the burden of anaemia. Because of easy reversibility and implementation, health service delivery-related issues should be addressed closely through monitoring and evaluation and appropriate. Timely action should be taken to improve the effectiveness of the services. More research is also needed by in depth studies about food available and eaten by women, more so adolescents.
Persisting high magnitude of anaemia in Women of Reproductive age

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OJGOR: December-2019: Page No: 65-71

Table I: Anaemia with Age, Socio economic status, Educational Status and Parity.

| Age   | Total screened | Non anaemic | Anaemic | Mild (9-10.9 gm/dl) | Moderate (7-8.9 gm/dl) | Severe (<7gm/) |
|-------|----------------|-------------|---------|---------------------|------------------------|---------------|
|       | No | %   | No | %   | No | %   | No | %   | No | %   | No | %   |
| 15-19 | 130 | 9.77 | 31 | 23.85 | 99 | 76.15 | 82 | 82.83 | 15 | 15.15 | 2 | 2.02 |
| 20-34 | 648 | 48.72 | 198 | 30.55 | 450 | 69.45 | 368 | 81.73 | 80 | 17.83 | 2 | 0.44 |
| 35-49 | 552 | 41.50 | 192 | 34.79 | 360 | 65.21 | 284 | 78.88 | 75 | 20.85 | 1 | 0.27 |
| Total | 1330 | 100 | 421 | 31.66 | 909 | 68.34 | 734 | 80.74 | 170 | 18.71 | 5 | 0.55 |

| Socio Economic Status | Low | 506 | 38.04 | No | %   | No | %   | No | %   | No | %   |
|-----------------------|-----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|
|                       | Total screened | Non anaemic | Anaemic | Mild (9-10.9 gm/dl) | Moderate (7-8.9 gm/dl) | Severe (<7gm/) |
|                       | No | %   | No | %   | No | %   | No | %   | No | %   | No | %   |
|                       | 1330 | 100 | 421 | 31.66 | 909 | 68.34 | 734 | 80.74 | 170 | 18.71 | 5 | 0.55 |

| Education | I-IV | 95 | 7.14 | No | %   | No | %   | No | %   | No | %   |
|-----------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|           | Total screened | Non anaemic | Anaemic | Mild (9-10.9 gm/dl) | Moderate (7-8.9 gm/dl) | Severe (<7gm/) |
|           | No | %   | No | %   | No | %   | No | %   | No | %   | No | %   |
|           | 1330 | 100 | 421 | 31.66 | 909 | 68.34 | 734 | 80.74 | 170 | 18.71 | 5 | 0.55 |

| Parity | P0 | 393 | 29.54 | No | %   | No | %   | No | %   | No | %   | No | %   |
|--------|----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|        | Total screened | Non anaemic | Anaemic | Mild (9-10.9 gm/dl) | Moderate (7-8.9 gm/dl) | Severe (<7gm/) |
|        | No | %   | No | %   | No | %   | No | %   | No | %   | No | %   |
|        | 1330 | 100 | 421 | 31.66 | 909 | 68.34 | 734 | 80.74 | 170 | 18.71 | 5 | 0.55 |

Table II: Symptoms Anaemic and Non-anaemic Women.

| Symptoms             | Anaemic | Non-Aneamic |
|----------------------|---------|-------------|
|                      | No | %   | No | %   |
| Low Backache         | 79 | 8.73 | 24 | 5.7  |
| Pain in Abdomen      | 181 | 20.02 | 89 | 21.14 |
| Oligomenorrhoea      | 19 | 2.1  | 107 | 0.25 |
| Generalised Weakness | 263 | 29.09 |     |      |
| Infrequent Menstruation | 25 | 2.76 | 4 | 0.95 |
| Urinary Track Infection | 52 | 5.75 | 29 | 6.88 |
| General Malaise      | 40 | 4.42 | 4 | 0.95 |
| Dysmenorrhoea        | 56 | 5.53 | 17 | 4.03 |
| Giddiness            | 5 | 0.55 |     |      |
| Infertility          | 19 | 2.1  | 14 | 3.32 |
| Leucocfohoea         | 106 | 11.72 | 74 | 17.57 |
| Urticaria            | 3 | 0.33 | 1 | 0.23 |
Persisting high magnitude of anaemia in Women of Reproductive age

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OJGOR: December-2019: Page No: 65-71

Spate

It was a community-based study in which we included female patients of reproductive age group. In the sample of 579 respondents, 178 were unmarried. In this study, results showed that 96.8% patients were found to have anaemia and majority of the patients (63.9%) were aged 15-30 years. Besides age and income, there are some other factors like parity, awareness and health services is also an influencing factor for anaemia which is not observed in this study. To implement measures to improve nutritional knowledge and awareness among mothers and health workers, nutrition education and intervention programs should address anaemia with a focus on both the dietary quantity. All of these interventions must be monitored for effectiveness [23].

Table 1A: Anaemic Women.

| Screened women | Anaemic women (Study Subjects) | Severe anaemic women (Excluded) | Non-anaemic women |
|----------------|--------------------------------|--------------------------------|-------------------|
| No             | 1330                           | 904                             | 421               |
| %              | 67.9                           | 67.6                            | 31.7              |
| Separate: In the present study, at community level 68.86% women of 35-49 years were anaemic and 75.78% adolescents.

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