Iron deficiency anemia in reproductive age women: A survey study of district Bahawalpur, Punjab, Pakistan

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Abstract: Iron deficiency anemia (IDA) is one of the foremost health issues among women of reproductive age. The study highlights to assess the level of awareness about the causes, symptoms, prevention and treatment of IDA among women of reproductive age in district Bahawalpur, province Punjab, Pakistan. A randomized study was conducted by using a self-designed standardized questionnaire disseminated to the hostels of female residents and homes in the immediate vicinity of Islamia University Bahawalpur. Females aged 18-45 years without any previous history of medical or gynecological problems were enlisted. A total number of 200 women were surveyed for awareness of iron deficiency anemia. Seventy three percent (73%) of women (n=146) were aware of the term IDA with the highest proportion of women falling in the age bracket 20-35 years. Most (66.9%) of the women were aware of the fact that their diet contains iron and its importance in health. It is concluded that, in reproductive age women the IDA can be prevented and treated through proper guidance and awareness through education.

Keywords: Anemia, iron deficiency, reproductive age, women.

INRODUCTION

Anemia has been defined by the World Health Organization (WHO) as "*a condition in which the number of red blood cells (RBCs) or their oxygen-carrying capacity is inadequate to meet the physiologic demands made by the body, which vary by age, sex, altitude, smoking and pregnancy status*". It is commonly observed that the scarcity of iron is the most prevalent issue in the world. "IDA is currently estimated to affect more than 500 million people" around the world (WHO, 2010). Anemia in pregnancy is identified by the WHO as a hemoglobin level less than 11g/dl (Candio and Hofmeyr, 2007). For the non-pregnant woman the estimated proportion of anemia is about 43% in the developing countries and 12% in the developed world (WHO, 1992). In Pakistan, there is very little data regarding the burden of this disease. Pregnant women, however, are more pre-disposed to IDA (Rohra *et al*., 2008).

Iron is an essential element required for the maintenance of physicochemical processes. It is necessary to maintain its balance for proper physiological functioning in the body. Excess iron levels may produce adverse effects like liver swelling and damage. Consequently iron deficiency (ID) is also undesirable (Anderson *et al*., 2009; Byrnes *et al*., 2002).

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The demands for iron increases during pregnancy, due to the physiological increase in red blood cell mass, and for the development of the placenta and fetus (Arkutu, 1999). The two most observable causes of anemia during pregnancy are iron deficiency and pre-existing thalassemia or sickle cell anemia (SCA), with iron deficiency the primary cause of anemia during this period. Compliance with iron therapy is a problem due to its undesirable adverse effects profile, which includes symptoms such nausea, vomiting, abdominal discomfort and constipation (March of Dimes, 2010) Studies have demonstrated the occurrence of adverse effects in both pregnant women and their offspring', predominantly in developing countries where the anemia is more prevalent (Kristei, 2009; WHO,2002; WHO,2003).

Furthermore, various research has revealed that anemia increases the risk of maternal mortality and morbidity (WHO, 2005), placing pregnant women at a potentially higher risk than non-pregnant women.

It is important for all women to take safety measures and more precautions in order to avoid the occurrence of anemia during and after pregnancy. This is especially pertinent to the last trimester when it is recommended for pregnant women to have their hemoglobin measured for anemia regularly during the said trimester. Reducing the prevalence of anemia among women remains a prioritized public health problem particularly in women of childbearing age worldwide (Rohra *et al*., 2008).

Table 1: Percentage and frequency of all the questions asked regarding IDA

S. No.	Questions	Options	Percentage	Frequency
1	Have you heard about anemia?	Yes	63%	126
		No	10%	20
		Have some idea	27%	54
2	Source of information	Radio	3.4%	5
		T.V	17.12%	25
		Newspaper/Magazine	32.19%	47
		Internet	28.76%	42
		Any other source	18.49%	27
3	Reasons of anemia	Decrease hormones	0%	0
		Decrease blood	94%	127
		Decrease vitamin	0%	0
		None of these	6%	7
4	Common signs and symptoms of anemia	Fatigue	0%	0
		Pale skin	23%	28
		Low body temperature	0%	0
		All of these	76%	91
5	Treatment of anemia	Iron supplements	66.9%	87
		Folate supplements	0%	0
		B12 supplements	0%	0
		All of these	33%	43
6	If you experience anemia then what step(s) you will take?	Consult doctor	78.7%	115
		Take dietary supplements	17.1%	25
		Any other	4.1%	6
7	Family disease	yes	43.6%	55
		No	56%	71
8	If you experience anemia, have you consult to a doctor?	Yes	51%	56
		No	48.6%	53
9	Factors of anemia in pregnancy	Iron deficiency	97.6%	125
		Menstruation	0%	0
		Hereditary factor	0.78%	1
		None of these	0%	0
10	Does birth control affect the risk of anemia?	Yes	56%	82
		No	7.5%	11
		Don’t know	36%	53
11	Is there any effect of anemia on child performance in school?	Agree	32.8%	48
		Strongly agree	52.7%	77
		Disagree	5.4%	8
		Don’t know	8.9%	13
12	Does iron/folate/parenteral vitamins supplements should be given in pregnancy?	Yes	92.9%	118
		No	0.78%	1
		Don’t know	8%	8
13	IDA inherited	Yes	2.4%	3
		No	75%	92
		Don’t know	22%	27
14	In women anemia is due to deficiency of?	Water	1.6%	2
		Minerals	1.6%	2
		Iron	95.2%	119
		None of these	1.6%	2

Continue……

S. No.	Questions	Options	Percentage	Frequency
15	The Preferable diet taken in IDA is?	a) Junk food and soft drink	0%	0
		b) Green vegetable and red meat	36%	44
		c) Cereals and grains	3.2%	4
		Both b and c	60.6%	74
		None of these	0%	0
16	The normal concentration of hemoglobin (Hb) in young female is?	14- 16 g/dl	8%	10
		12- 15 g/dl	28.8%	36
		12- 16 g/dl	35.2%	44
		14- 15 g/dl	28%	35

The purpose of the study is to assess the level of knowledge about awareness, causation and prevention; to some extent the treatment of IDA among women of child bearing age to determine the level of need for healthcare awareness programs to be initiated by the government of Pakistan.

MATERIALS AND METHODS

A randomized study was conducted in the immediate vicinity of Islamia University Bahawalpur, district Bahawalpur, Punjab, Pakistan for a period of six months (November 2013 to April 2014) surveying female hostel residents and house hold women A total of 200 women were selected randomly and the target group was women of child bearing age, physically healthy and aged from 18 to 45 years without considering their marital status. Women of any medical or gynecological problems were excluded from the study. The survey was conducted with a face to face interview where the questions were translated in Urdu for illiterate women. All information was kept confidential. The survey instrument was a pre-tested and open-ended questionnaire, designed according to relevant literature on iron deficiency anemia and modified with a total number of 16 questions in which women were asked about general awareness of iron deficiency.

STATICAL ANALYSIS

The descriptive statistical analysis of data was made through the excel software 2013.

RESULTS

On completion of study, 200 participants were interviewed. The main characteristics of the study sample are illustrated in table-1. During the process of this interview women of age 18-25, 26-35, and 36-45 years were aware of the causes and treatment of iron deficiency anemia with 49%, 29.5%, and 21.5% respectively.

The research shows that. 63% female were aware of IDA, where as 27% had little knowledge and 10% of the participant were unaware. The present study reveals that the participants obtained their information about IDA from newspapers and magazines (32.19%), Internet (28.76%), T.V (17.12%), Radio (3.4%), and other sources (18.49%) respectively. 94% (188 participants) understanding was of decreased blood levels as the cause of anemia and just 6% (7 participants) had no knowledge about the causes of IDA. The common symptoms of IDA affected women 76% (91 participants) were pale skin, low body temperature and fatigue; while 23% (28 participants) have only pale skin. In the medication 66.9% (87 participants) took iron supplements where as 33% (43 participants) took iron supplement in combination with folate supplement and vitamin B_{12} in combination therapy, 78.7% (115 participants) consulted medical doctor when experienced IDA symptoms; 17.1% (25 participants) were taken dietary supplements and about 4.1% (6 participants) were taken some other measures. The collected data got mixed idea from this study about the heredity of IDA as 56% (71 participants) had no family history of IDA. However, 43.6% (55 participants) had IDA in their families which mean that IDA may have potential for inheritance. Upon question of factors of anemia 97.6% (125 participants) replied Iron deficiency; 0.78% (1 participant) told heredity and 1.5% (2 participants) answered all these factors are responsible. Contraceptives can control the risk of IDA according to 56% (82 participants); on the other hand 7.5% (11 participants) replied it cannot affect IDA occurrence and 36% (53 participants) had no idea about it. The child performance in educational activities of IDA affected mother were mostly found reduced; strongly agreed by 52.7% (77 participants); 32.3% (48 participants) were agreed; very few 5.4% (8 participants) were disagreed; 8.9% (13 participants) did not know about this hazards and 92.9% (118 participants) women suggested to give Iron. Concerning about folate and vitamin supplements during pregnancy very few of them; 0.78% (1 participant) said as 'NO' and few 8% (8 participants) had no information. IDA inheritance was not found in 75% (92 participants); 22% (27 participants) had no idea and only 2.4% (3 participants) had IDA inheritance. In women IDA is due to menstrual blood loss said by 95.25% (119 participants); 1.6% (2 participants) said water, minerals and none of them. The diet recommended for the cure of IDA by 60.6% (74 participants) were green vegetables,

red meat, cereals and grains. Cereals and grains suggested by 3.2% (4 participants) and 36% (44 participants) green vegetables and red meat. Normal concentration of Hb in g/dl told by 35.2% (44 participants) was 12-16g/dl; 12-15 g/dl told by 28.8% (36 participants); 14-15g/dl said 28% (35 participants) and 8% (12 participants) mentioned 14-16g/dl

DISCUSSION

IDA remains a common and important disorder and accounts for approximately one-half of the cases of anemia (UNRWA, 2006). This study shows that the majority of the women surveyed are aware of IDA, where as 27% (54) have little information and only 10% (20) had no knowledge.

Pale skin was cited as the most common sign / symptom of IDA according to the results of the survey. The study also highlighted that in present days women are discouraged to self-medicate and seek the physicians expertise. The data also exhibited that IDA may have potential for inheritance. According to one of the study a variety of mutations in a gene called TMPRSS6 (the acronym stands for transmembrane serine protease S6) in IDA families, as well as several patients without a family history of the disorder (Al-Dallal, 2016; Crespo, 2008).

The results of this study demonstrate that women in the community of Bahawalpur have considerable awareness about IDA and its effects. They know the importance of iron for the maintenance of good health. The predominant age group of our sample was between 18-25 years (it must be noted however that this may not be an accurate reflection given that the conservative culture is such that females are reluctant to reveal their true age). There was variation in awareness and knowledge between the literate and non-literate participants, with the former performing better.

Health education is one of the methods used to reduce the prevalence of anemia during pregnancy. Health education constitutes an important approach to bring awareness about anemia in terms of exposures, risk factors, essential nutritional ingredients and the importance of iron supplementation (Finberg, 2009). For the reduction of anemia prevalence, health education is a vital factor to be observed during this stage (Hoffman *et al*., 1998). Awareness regarding IDA is directly linked with the educational and social status of a community and is found to be increasing with the passage of time with exploration and accessibility to media and health care facilities. Women of the younger generation are more concerned about their health and exercise more care with their expected babies in terms of nutritional facts as compared with the elder generation.

CONCLUSION

Awareness of IDA, its effects, prevention and treatment is, according to this study, is reflected quite well. The majority of the participants understood the importance of iron supplements in their diet, but there were still a number of women who do not observe any benefit from iron supplementation or seeking regular health checkups. A number of factors could dictate this most notably, economic issues, the lack of education and counseling given by health practitioners in the community or misinformation from family relations. Literate females have sound knowledge as compared to the non-illiterate. By providing awareness and counseling through education and media it is hoped that they will take preventive measures.

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