Knowledge of mothers about nutritional anemia in children under five years in Baghdad city

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Abstract : Nutritional anemia is a very common problem and is a major public health challenge in many developing countries including Iraq.

Objectives : 1- Assessment the knowledge of mothers about nutritional anemia in children.

2-Assessment nutritional status of children under 5 years old as well as association of anemia with nutritional factors, age, weight.

Methodology : A cross-sectional study conducted in Bab – Al-moadham primary health center in Baghdad city, sampling was (nonprobability convenient) & the sample size was 150" study started from" 1st October 2015 to 1st of April 2016.Data was collected by questionnaire to obtain socio-demographic information (age, gender,residence, weight, Hb value, type of feeding ,educational level of mothers ,……..etc). Data was analyzed by frequency tables. Chi square test was applied to test the association between variable with significant result when P value was <0.05.).

Results : The results showed that the prevalence of anemia in preschool age children is 47.4%. The present study was carried out to find out the prevalence of different grades and etiology of nutritional anemia in children under five years old. Total 52 anemic children including males and females from study sample 150 children. Iron deficiency was the commonest cause of nutritional anemia. In early childhood, bad feeding habits, especially during the weaning period and suffering from worms are factors leading to nutritional anemia.

Recommendations : Extensive and persuasive efforts are required to bring behavioral changes in the community for people to adopt dietary diversification. Ultimately, the only sustainable solution to IDA(Iron Deficiency Anemia) is to help the community to consume regularly foods that are rich in iron, to encourage intake of promoters of iron absorption such as vitamin C.

1- Introduction:

The continued persistence of anemia in many parts of the world at high levels is a challenge that needs to receive the highest priority for attention and action. Despite the magnitude of anemia problem, and the constantly expanding body of research findings relating to pathogenesis, risk factors, and efficacious interventions, coverage of interventions remains poor[1]Among the numerous factors, both nutritional such as vitamin and mineral deficiencies and non-nutritional such as infection and hemoglobinopathies, that contribute to the onset of anemia, iron deficiency and malaria play an important role[2]. Given the role of iron in oxygen transport and the low levels available iron in the global population, it is assumed that iron deficiency is one of the biggest contributing factors to global burden of anemia[3].In full-term infants, the iron stores can meet the iron requirements until ages four to six months, and IDA generally does not occur until approximately nine months of age. Comparatively preterm and low-birth –weight infants are born with lower iron stores and grow faster during infancy. Consequently, their iron stores are often depleted by two to three months of age and they

are at greater risk for ID[4,5].After 24 months of age, the growth rate of children slows and the diet becomes more diversified, the risk for ID drops [6,7].Around the word, IDA affects approximately 750 million children[8].Using anemia as an indicator it has been found that at least 30% to 40% of children and pregnant women in industrialized countries are iron deficient[9,10].

Data from the third Nutrition Health and Nutrition Examination survey (NHANES III) in the United States indicated that 3% of children aged 12-36 months and less than 1% in the 37-60 months age group had IDA[11'12 and 13]. Factors associated with the increased prevalence of IDA in these populations include high consumption of evaporated milk and cow᾽s milk after six months of age, prolong exclusive breastfeeding and significant burden of Helicobacter pylori infection. The clinical signs of IDA are those of anemia itself. Children with severe ID are often described as irritable, apathetic with a poor appetite. Primary prevention has the potential of providing benefited to whole population and preventing the onset of IDA. Primary prevention of IDA in infants and pre-school children including breastfeeding and fortification of formula (if not breast-fed) or infant cereal .Secondary prevention includes efforts to identify children with IDA through screening programs. When IDA is identified, the family should be counseled regarding the importance of limiting   the total daily milk intake and increasing iron-rich foods, including those with vitamin C that improves iron absorption, and avoiding foods that impair iron absorption such as tea .Children with IDA should also receive iron supplementation The recommended therapeutic dose of oral iron is 6 mg/kg/day of elemental iron, for three to four months .Adequate follow-up is also important[14,15].

2.Objectives :

1. Assessment the knowledge of mothers about nutritional anemia in children.
2. Assessment nutritional status of children under 5 years old as well as association of anemia with nutritional factors, age, weight.

3. Subjects and Methods:

3.1. Study design: Across-sectional study& the sample size was 150.

3.2. Duration of the study:

Data collection continued for a period starting from 1stOctober 2015 to 1stApril 2016 .

3.3. Study Setting:

The place where data collection fromBab – Al-moadham primary health center in Baghdad city.

3.4. Data collection:

A specialquestionnaire was design for the study to including socio-demographic information (age, gender, residence , weight, Hb value ,type of feeding ,educational level of mothers ,……..etc).

3.5. Statistical method:

Statistical analysis was carried out using SPSS program, it was cross-sectional study including percentage and chi-square test to find any association between variables.
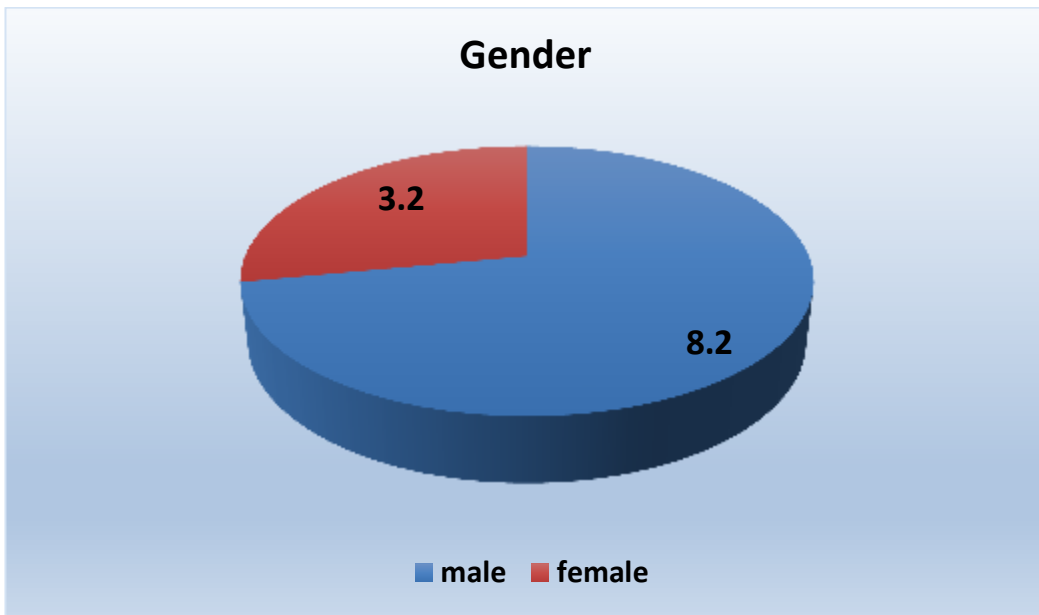
4- Results :

Gender

3.2

8.2

■ male ■ female

Figure (1):Distribution of children regard to gender The results in figure (1) shows that high frequency case found in males than females .

Table (1): the distribution of study sample according to gender and residence :

		N=150	%
Gender	male	77	51.3
	female	73	48.7
residence	urban	110	73.3
	rural	40	26.7

The results in table (1) shows the high percentage of children according to gender are 51.3% in males whose living in urban with percentage 73.3 %.
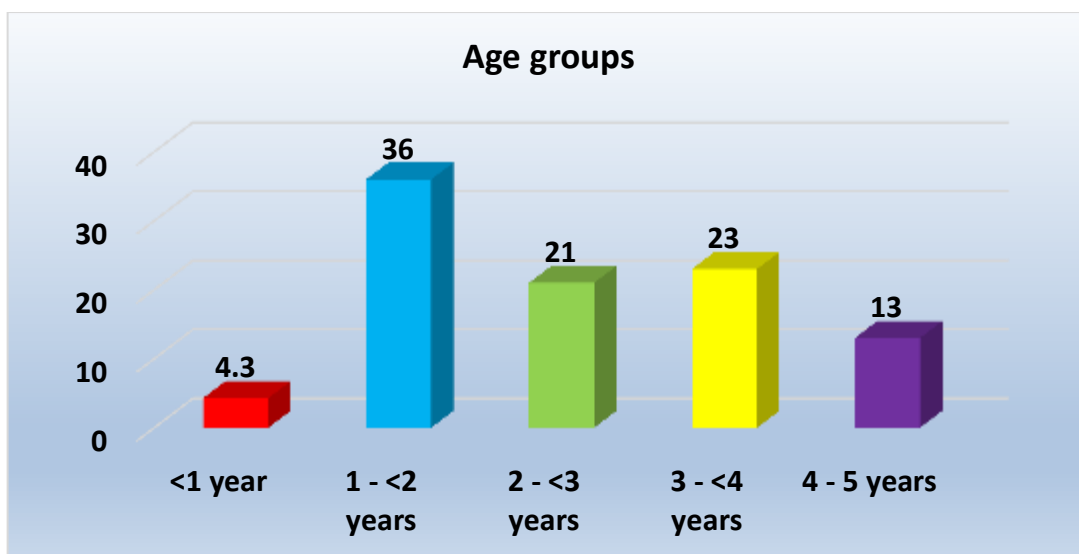

Age groups

Figure (2): Distribution of children regard to age group

The results in figure (2) shows that high frequency case in children with age group (1-<2) years and high significant value p<0.01.

Table (2): The distribution of table according to association between gender and Hb value:

		Hb value	N=150	%
Gender	**Male**	normal	48	62.3
		abnormal	29	37.7
		Total	77	100.0
	Female	normal	50	68.5
		abnormal	23	31.5
		Total	73	100.0

This table shows significant association between gender and Hb value was found high significant .

Table (3): The distribution of table according to type of feeding and age group:

type of feeding		Age groups					Total
		<1 year	1 - <2 years	2 - <3 years	3 - <4 years	4 - 5 years	
none	No.	1	12	12	20	12	57
	%	0.7%	8%	8%	13.3%	8%	38.0%
breast feeding	No.	23	6	2	1	0	32
	%	15.3%	4%	1.3%	0.7%	0%	21.3%
artificial feeding	No.	15	8	3	1	0	27
	%	10%	5.3%	2%	0.7%	0%	18%
mixing feeding	No.	18	10	4	1	1	34
	%	12%	6.7%	2.7%	0.7%	0.7%	22.7%
Total	No.	57	36	21	23	13	150
	%	38%	24%	14%	15.3%	8.7%	100%

This table shows high percentage of children according to feeding with age group <1 year while lower percentage was in age group (4-5) years.

Table (4): The distribution of study according to educational level of mother :

		N=150	%
educational level of mother	illiterate	29	19.7
	primary	24	16
	mediatory	42	28
	secondary	24	16
	institute or collage	31	20.3

This table shows high percentage of mother with institute or collage was 20.3 % while lower percentage was primary and secondary 16% .

Table (5): The distribution of sample according weigh and age group :

weight Groups		Age groups					Total
		<1 year	1 - <2 years	2 - <3 years	3 - <4 years	4 - 5 years	
5-8 kg	No.	27	1	0	0	0	28
	%	18%	0.7%	0%	0%	0%	18.7%
9-12 kg	No.	30	28	5	0	0	63
	%	20%	18.7%	3.3%	0%	0%	42%
13-16 kg	No.	0	7	16	23	7	53
	%	0%	4.7%	10.7%	15.3%	4.7%	35.3%
17-20 kg	No.	0	0	0	0	6	6
	%	0%	0%	0%	0%	4%	4%
Total	No.	57	36	21	23	13	150
	%	38%	24%	14%	15.3%	8.7%	100%

This table shows high percentage of children with age <1 year according to weight. MCP < 0.01, (HS)

Table (6):The distribution according to association between weight and type of feeding:

weight Groups		type of feeding				Total
		none	breast feeding	artificial feeding	mixing feeding	
5-8 kg	No.	0	11	10	7	28
	%	0%	7.3%	6.7%	4.7%	18.7%
9-12 kg	No.	10	17	12	24	63
	%	6.7%	11.3%	8%	16%	42%
13-16 kg	No.	41	4	5	3	53
	%	27.3%	2.7%	3.3%	2%	35.3%
17-20 kg	No.	6	0	0	0	6
	%	4%	0%	0%	0%	4%
Total	No.	57	32	27	34	150
	%	38%	21.3%	18%	22.7%	100%

Table (6) shows significant association between weight of child and type of feeding MCP < 0.01, (HS)

Table (7): The distribution of study according to enough intake amount of Vit.C, child feeling and if the child with iron deficiency anemia:

		N=150	%
dose the child take enough amount of vitC	yes	84	56
	no	52	34.7
	Do not known	14	9.3
dose the child feel tired all time	yes	40	26.7
	no	97	64.7
	Do not known	13	8.7
dose the child have iron deficiency anemia	yes	38	25.3
	no	81	54
	Do not known	31	20.7

This table shows that 56% of children whose take enough amount of Vitamin C in their diet while children without suffering from tiredness about 64.7% and children without iron deficiency anemia about 54% of sample.

Table (8): Distribution of study according to starting supplement food, milk intake and tea

		N=150	%
time of supplement food	less than 4 months	33	22
	from 4-6months	99	66
	from 7-12months	18	12
does the child take milk excessively	yes	100	66.7
	no	47	31.3
	Do not known	3	2
does the child drink tea	yes	63	42
	no	87	58

This table shows that 66% of children whose take supplement food from 4-6 months aged, about 66.7% who take milk excessively, and the percentage of children who drink tea about 42%.

Table (9):The distribution of sample according to balance meals and family history, medications, suffering from worms and supplementary Vit.

		N=150	%
dose the child take balance meals	yes	88	58.7
	no	52	34.7
	Do not known	10	6.7
Family history	yes	26	17.3
	no	97	64.7
	Do not known	27	18
dose the child suffer from worms	yes	101	67.3
	no	45	30
	Do not known	4	2.7
dose the child take any medications	yes	83	55.3
	no	67	44.7
dose the child take supplementary vitamins	yes	30	20
	no	116	77.3
	Do not known	4	2.7

The results in this table shows about 58.7% of children with balance meals , 67.3% with suffering from worms , 55.3% whose take medications and 20% of sample whose take supplementary Vitamin .

5- Discussion:

In this study shows that hemoglobin abnormal in males was 37.7 and in females was 31.5 and these agree with study doneby Konstantyner.[16]Regarding the age, the results in this study demonstrated that the higher percentage was in the age group (1-<2) years(36%), these result is agreement with findings reported in study conducted in Brazil by Monteiro were founded about (35.2%) at the same age group.[17]The finding of the present study indicated that the majority of anemia in male than female (8.2%),it is agreement with study conducted in Burma by Zhao [18]. Regarding the residence, the results in this study demonstrated that the higher percentage was in the urban area (73.3%) and this may be related to number of reasons such as environment and population, so these agree with study done by Barakat[19]..In educational level , the results in this found in mediatory level (28%). Regarding family history negative had higher percentage (64.7%). Related to feeding, mixing feeding had higher percentage (22.7%).this agree with study done by Horta ,their study recorded(24%) in both mixing and artificial feeding [20].Our study also found significant association between breast feeding and age group, higher percentage recorded in aged less than one year (15.3%) and artificial feeding was (10%).this agree with study done by Shaw and Friedman were founded percentage with (10.3%)[21].The association between weight and feeding, the results shows significant association between child's weight and type of his

feeding ,exclusive breast feeding is recommended for the first six months and breast feeding continuing up to two years, the result recorded that (42%) in 9- 12 Kg ,these result supported by Sachdey in India [22] .In nutritional status, the results shows that children more than 6 months have enough amount of vitamin C in their diet (56%) and about (66.7%) of them take excessive milk .children with balance meals about (58.7%) . Regarding the drug, the results in this study demonstrated that higher percentage found in children who take drug (55.3%), this agree with study done by Lynch were founded about (51.7%) who take medicines this may be lead to reduce immunity in a child's body or belonged to the side effects of drugs[23]**.** Regarding the supplementary vitamins, the results in this study demonstrated that higher percentage found in children non take supplementary vitamins (20%)**,** this disagree with study done by Baltussen[24] In time of supplement food, introduction of other liquid or solid foods during the first six months of life can interfere with absorption of iron from breast milk, in this Study we found a high percentage (66%)of children who started taking supplement food in first six months the finding of the present study is agreement with findings reported in study conducted in Burma ,with Staltzfus[25], and supported by other study by Carvalho, they founded nearest percentage (65.4%) . Finally, our study shows that (67.3%) children suffering from worms, this may be lead to anemia ,because these worms nourished on blood and nutrients of children then it will decreased absorption of iron and food in their bodies.

5.1. Conclusion: The study concluded that:

IDA(Iron Deficiency Anemia) in children remains a public health problem, and certain populations of children are at particularly high risk. IDA is associated with poor developmental outcomes in children; in our present study concluded that: Male will get high percentage (51.3%),than female(48.7%),and children in age group (1-< 2)years get high frequency, (67.3%) the percentage of children suffering from worms, and about (55.3%) for children who take medicines .

5.2. Recommendation: It is recommended that:

When IDA(Iron Deficiency Anemia) is identified, the family should be counseled regarding the importance of limiting the total daily milk intake and increasing iron- rich foods, including those with vitamin C that improves iron absorption, and avoiding foods that impair iron absorption such as tea, Pepsi. Children with IDA should also receive iron supplementation. The recommended therapeutic dose of oral iron is 6 mg/kg/day of elemental iron, for three to four months. Adequate follow-up is also important.

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