Knowledge, attitude & practice of pregnant women about the role of periconceptional use of folic acid in three primary health care centers in Baghdad / AL-Russafa

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ABSTRACT

Background: Folic acid (vitamin B9) is one of the important vitamins that are necessary for growth and development of the embryo and preventing the occurrence of congenital malformations which are one of the important health problems in the developing countries and the world as it has a direct effect on the affected babies, their families and the community. It affects an estimated 3% of newborns worldwide.Periconceptional supplementation with folic acid (before conception and during the first 12 weeks of pregnancy) was found to decrease many important types of these anomalies.

Objectives: The aim of this study is to assess knowledge, attitude and practice of periconceptional use of folic acid in pregnant women who are attending antenatal care unit in three Primary Health Care Centers in Baghdad / AL-Russafa side.

Type of the study: Descriptive cross-sectional study

Patients and Methods: The study used a convenient sample technique for pregnant women who are attending antenatal care unit in three primary health care centers in Baghdad/AL_Russafa at the period from January to April 2014. The sample size was 200. Non-pregnant women were excluded.

Results: a large proportion (86%) of pregnant women who had been interviewed knew about folic acid. 61% of them gained the information about it from doctors and 44.5% know its importance in protection from congenital anomalies. Although there was a good practice regarding folic acid supplementation during the current pregnancy; only 10% of them had used it in the proper time (at least one month before pregnancy to the end of the first trimester). It has been found that the largest rate of its use was in the second month (28%), Still 22% of them realize that it must be taken before pregnancy.

Conclusion: From 200 pregnant women interviewed in the current study, the majority knew about folic acid but nearly only half of them states its importance in protection from congenital anomalies. Most of the women usedfolic acid in the current pregnancy on a daily bases and take it as pure folic acid. Although some of the pregnant women were aware about the proper time of taking folic acid, only few took it before pregnancy. Doctors were the main source of information.

Key words: folic acid; pregnant women; periconceptional period.

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Folic acid, also called folate in its nature form, is a form of water soluble vitamin B9 (1). It is named after the Latin word for leaf (folium), because it was first found in spinach and other green leafy vegetables. It is promoted mainly as part of a healthy diet to reduce the risk of birth defects of the brain and spine (such as underdeveloped brain and spina bifida or "open spine" and helped to prevent anemia during pregnancy (2)

Folic acid has an important role in DNA/RNA synthesis, amino acid transformation, the formation of red blood cells, and the formation and maintenance of the body cells. Folic acid requirements increase during periods of rapid growth and division ofthe body's cells throughout life (1).

Neural tube defects (NTDs), including anencephaly, encephalocele and spina bifida, are common causes of morbidity and mortality among infants and neonates, they are the second most common type of birth defects after congenital heart defects (3,4). The incidence of neural tube defects (NTDs) has declined substantially over the past 60 years and is about 1-2 per 1000 babies in the general population (4).

Pre-conception folic acid supplementation prevents approximately 70% of neural tube defects (NTDs) (4). Although most women carrying an affected fetus do not have deficient blood folate levels, the risk of having a neural tube defect- affected child is inversely correlated with red cell folate levels in pregnancy. The most effective approach to combat this problem is daily supplementation with folic acid prior to pregnancy (4).

Periconceptional supplementation with folic acid (before conception and during the first 12 weeks of pregnancy) was found not only to decrease the risk of neural tube defects by 50-70 %, but also protecting from other birth defects such as those of the heart, limbs, urinary tract, cleft lip and palate, as well as other major structural abnormalities(5).

Aim of study: To assess knowledge, attitude & practice of the periconceptional use of folic acid in pregnant women who are attending antenatal care unit in three primary health care centers in Baghdad / AL-Russafa.

Patients and methods:

A descriptive cross-sectional study was carried out in about four month duration from Jan. to April 2014 in Baghdad / AL-Russafa health directorate, in three Primary Health Care Centers named as (AL-Dubbat, AL-Mustansiriya and Bab Almudhum Specialized Family Health Care Centers) using a convenient sampling technique for pregnant women who attended antenatal care unit in centers mentioned above. The sample size was 200(out of 207). All pregnant women who attended one of the three Primary Health Care Centers (AL-Dubbat, AL-Mustansiriya and Bab Almudhum

Specialized Family Health Care Centers) were included in the study. Non-pregnant women were excluded.
The study was approved by ethical and scientific committee in the Counsel of Arab Board of Health Specialties and Iraqi Ministry of Health. Permissions and approvals were taken verbally from all pregnant women included in the study to answer the questionnaire which was designed from review of literatures & revised and supervised by the supervisor of this study, the seniors in the Department of Community Medicine, Al-Kindy College of Medicine and by gynecological senior in Iraqi Ministry of Health. The questionnaire involved:,Socio-demographic variables, obstetric criteria and the knowledge, practice and attituderelated questions.
Statistical analysis was performed by Statistical Package for Social Science (SPSS) program version 17, MINITAB version 16 and p-value of less than 0.05 considered statistically significant.

Results:

Table.1: shows the Distribution of pregnant women according to certain sociodemographic characteristics, 27.5% of the sample was between25-29 years of age, 72% of them were house wives and 32% graduated from primary school only.

Table.1: Distribution of pregnant women according to certain sociodemographic characteristics.

demographic Variables		Number	Percent%
Age (year)	15- 19	12	6
	20- 24	53	26.5
	25-29	55	27.5
	30-34	43	21.5
	35-39	25	12.5
	40-44	12	6
Occupation	Student	4	2
	Employer	52	26
	Housewife	144	72
Educational level	Illiterate	16	8
	Primary school	64	32
	Middle school	44	22
	Secondary school	20	10
	University &higher	56	28
Total		200	100

Table.2: shows the distribution of pregnant women according to obstetrics variables, 23% of the sample was in (parity 2) category, one (or more) still birth consist 5%, one spontaneous abortion 25%, congenital anomaly 6% and finally positive family history of congenital anomaly was 9%.
Table .3: shows the distribution of pregnant women according to knowledge variables about folic acid, 86% of the sample hear about folic acid, and about 61% of information gained from the doctors, 75% know the importance of folic acid in pregnancy and 71%, 74%, 44.5% know the importance of folic acid to the growth of embryo, protection from anemia and prevention from birth defect respectively.
Table .4: shows nutritional and dietary knowledge about folic acid of the pregnant women, while some of pregnant women know about the presence of folic acid in vegetables and fruit (45% and 48% respectively),

Table.2: Distribution of pregnant women according to obstetrics variables.

obstetrics Variables		Number	Percent%
Parity	0	44	22
	1	42	21
	2	46	23
	3	25	12.5
	4	18	9
	5+	25	12.5
Still birth	0	190	95
	1+	10	5
Spontaneous abortion	0	132	66
	1	50	25
	2+	18	9
History of congenital anomaly	Yes	12	6
	No	188	94
Family history of congenital anomaly	Yes	18	9
	No	182	91
Total		200	100

most of them did not know its presence in other common food stuff in different percentages, reaching about 70% in liver containment.
Table .5: shows the practice parameter (variables) about folic acid of the pregnant women. Although 66% of the sample changes their diet quality in their pregnancies, 74% of them don't know whether their food is rich in folic acid or not. 65% use folic acid in previous pregnancy, 86% use it in the current pregnancy of which 66% of them in daily bases and 69% of them take it as pure folic acid and only 10% of them used it before pregnancy. Table.6: The attitude of pregnant women according to some variables related to folic acid (F.A). from the 200 pregnant women (study sample), 83% agree with change their diet during pregnancy, 22% thought that ideal time is before pregnancy and 34% of them think that it's better to be taken in the first month .Finally 84% of them advice others to use it.

Discussion:

Starting with the demographical description of the study sample in table1, it shows that the largest rate of the sample (27.5%) was between 25-29 years of age, 72% of the sample were housewives and 32% graduated from primary schools, less proportions for those graduated from universities and secondary schools (28% and 10% respectively).This is in consistent with a study done by Gülengül N. et al (2013) (6) and a study done by Huan Liang et al (2011) (7). While in a study done by Nosrat S. et al (2012) (8), the mean age of the women included in the study was 23.4 ± 4.1 years, largest proportion(23.5%) of women were under 20 years and 5.3% over 30 years old. The largest proportions of women interviewed were those who graduated from high schools (37.6%) and primary schools (37.48%).
Table 2 shows the distribution of pregnant women according to obstetrics variables. It revealed that 23% of the sample was in (parity 2) category and 22% were nulliparous, those who had one still birth consist 5%, one spontaneous abortion 25%, two (and more) spontaneous abortions 9%, congenital anomaly 6% and finally those who had positive family history of congenital anomaly were 9%. These results are very similar to a study done by Bener Al. et al (2006)(9), while in a study done byH. Al-Hassani et al (2010) (4), nearly one third (32.1%) of the interviewed women were primigravidas, followed by 23.8% those who had 2 parities. Regarding

history of obstetric & neonatal complications, the current study is compatible with a study done in Lebanon by Tamim et al (2009) (5) which shows 23.3% of their sample had spontaneous abortion and 1.4%of them had previous infant with congenital malformation.

Table 3 shows 86% of the sample heard about folic acid, and 61% of information gained from the doctors, 75% know the importance of folic acid in pregnancy and 71%, 74%, 44.5% know the importance of folic acid to the growth of embryo, protection from anemia and prevention from birth defect respectively. This agrees with a study by H. Al-Hossani et al(2010) (4) which shows that 79.1% of their sample heard about F.A and 60.7 %said that doctors were the most common source of information . Other studies compatible with the current study are studies done by Nasr et al (2012) (10),Gülengül N. et al(2013) (6) and by Nosrat S et al (2012) (8). Nearly similar to this a study done byBener A et al(2006) (9) showed that 53.7% of their sample reported that they heard of folate and only 14% of them state its importance of F.A in prevention of birth defects and 3.3% of their sample state its benefits in protection from anemia in pregnant women. Other recent study by Mark Maher and RemonKeriakos (2014)(11) also shows nearly 98% of the women stated that they had heard of folic acid, but only 42-52% knew the medical condition it protects against. The main sources of information for women who were aware of folic acid were midwives and general practitioners.The assumption of poor knowledge unfortunately involves the nutritional items of the study, as this was shown in **table 4**. While some of pregnant women know about the presence of folic acid in vegetables and fruit (45% and 48% respectively), most of them did not know its presence in other common food stuff in different percentages, reaching about 70% in liver containment. This facts run in consistence with most of studies in Arabic region, like a study done in Qatar among females in child bearing age by Bener A et al (2006) (9) which shows that 40.6% of those who heared about F.A were aware that folate is found abundantly in green leafy vegetables. Other study compatible with this was done by Mark Maher and RemonKeriakos (2014) (11).Average values of practice parameters of pregnant women for folic acid use were shown in **table 5** which shows that although 66% of the sample changed their diet quality in their pregnancies, less than half of them (24%) achieved increase in food that is rich in F.A and 74% don't know where the folic acid in their food stuff is. Similar to this: a study done byH. Al-Hassani et al (2010) (4) which showed that although 64% of their sample altered their diet during pregnancy, only 23.8% achieve increase in food that is rich in F.A. Besides, in the current study, 86% and 65% of the sample used F.A in the current and previous pregnancy respectively, 66% on daily bases and 69% take it as pure F.A. Regarding the proper time of taking F.A, only 10% of those who used it, took it in the proper time (at least one month before pregnancy to the end of the first trimester) while the 28% of them used it from the second month and 27% used it from the fourth month.

International studies show similar values: in astudy done by Gülengül N. et al (2013) (6), where only 14.2% of their sample used in the periconceptional period. And a study done byH. Al-Hossani et al(2010) (4), although 69.7% of women had taken F.A in their current pregnancy, only 7.8% consumed it in the proper time. The F.A taking rate in the proper time in the current survey is higher than the studies from Saudia Arabia (4.4%) (2013) (12), Lebanon (6.2%) (2012)(10).

Table 6 shows the response of the pregnant women concerning their attitude variables, at which 83% of pregnant women agreed with changing their diet during pregnancy, 22% of them were aware that it's better to be taken before pregnancy, while 34% of them think that it should be taken during the first month. Finally, 84% of the sample advised others for using it. This agrees with a study done by H. Al-Hossani et al (2010) (4), 29.5% of them aware that F.A should be taken before pregnancy, while 34.9% of them think that it should be taken during the first month of pregnancy. Also a recent studyby Mark Maher and RemonKeriakos(2014) (11): reported that nearly 90% of women who attended their first antenatal visit were taking folic acid. However, only 40% of women knew that they should take it before pregnancy.

Conclusion

1. Although the majority of the sample knows the importance of folic acid in pregnancy, the importance of folic acid to the growth of embryo and protection from anemia, nearly only half of them know its importance in protection from birth defects.
2. While some of pregnant women know about the presence of folic acid in vegetables and fruit, most of them did not know its presence in other common food stuff in different percentages.
3. Although some of the sample realizes that it's better to take folic acid before pregnancy, only few of them take it in the proper time (at least one month before pregnancy to the end of the first trimester).

Recommendations

1. Expanded health education is needed to all females in reproductive age groups duringwellness visits and by applications of educational strategies among women in child bearing age in girls' middle and secondary schools. Other strategies to include television or radio programs, magazines, and Internet, as well as targeting physicians and other health care providers to educate men and women on the importance of folic acid using aids like lectures, posters and leaflets.Women should also be advised to maintain a healthy diet.
2. The recommended strategy (ies) for primary prevention or to decrease the incidence of fetal congenital anomalies and prevent recurrence of congenital anomalies will include a number of options or treatment approaches depending on patient age, ethnicity, compliance, and genetic congenital anomaly risk status:
(a) for all other reproductive-aged women,0.4 to 1 mg folic acid daily for at least 2 to 3 months prior to conception, throughout pregnancy, and during the postpartum period. (b) for women at high risk of having a child with a NTD (such as those with a personal or family history of NTD, a prior child with a NTD, or those on anticonvulsant medications), dietary supplementation with 5 mg folic acid daily prior to conception.
3. Folic acid supplementation should be free and affordable in all P.H.C.Cs to all women in reproductive age group.
4. More evidence needed and more researches in this very important issues.

Table .3: Distribution of pregnant women according to knowledge variables about folic acid.

	Knowledge Variables	No.	Percent %	P
Did you hear about folic acid?	Yes	172	86	0.001
	No	28	14	
Source of information	Mass media	1	0.5	0.001
	doctors	122	61	
	PHCC staff	25	12.5	
	Book ,magazine	7	3.5	
	Family member	15	7.5	
	Net work	0	0	
	History of previous malformed infant	2	1	
	Others	0	0	
Do you know the importance of FA in Pregnancy?	Yes	150	75	0.001
	No	50	25	
1-Growth& develop. of embryo	Yes	142	71	0.001
	No	1	0.5	
	I don't know	57	28.5	
2- Protects from anemia	Yes	148	74	0.001
	No	0	0	
	I don't know	52	26	
3-Prevents birth defects	Yes	89	44.5	0.001
	No	0	0	
	I don't know	111	55.5	
Total		200	100	

Table .4:Nutritional and dietary knowledge about folic acid of the pregnant women.

Nutritional and dietary knowledge				
Variables		No.	Percent%	p
State food that is highly rich in folic acid: Green leafy vegetable	Yes*	90	45	0.001
	No	0	0	
	I don't know	110	55	
Fish	Yes	72	36	0.001
	No	24	12	
	I don't know	104	52	
Fruit	Yes	96	48	0.001
	No	2	1	
	I don't know	102	51	
Liver	Yes	48	24	0.001
	No	12	6	
	I don't know	140	70	
Milk	Yes	84	42	0.001
	No	12	6	
	I don't know	104	52	
Whole grain bread	Yes	32	16	0.001
	No	16	8	
	I don't know	152	76	
White bread & pastries	Yes	76	38	0.001
	No	18	9	
	I don't know	106	53	
Total		200	100	
*Yes= know (accept the question) No= (not accept the assumption or context of question)				

Table .5: The Practice parameter (variables) about folic acid of the pregnant women.

Practice				
Variables		No.	Percent%	p
Did you change your diet quality in this pregnancy	Yes	132	66	0.001
	No	68	34	
Did you increase food that is rich in F.A?	Yes	48	24	0.001
	No	4	2	
	I don't know	148	74	
Have you used F.A in previous Pregnancy?	Yes	130	65	0.001
	No	28	14	
	There is no previous pregnancy	42	21	
Have you used it in this pregnancy?	Yes	172	86	0.001
	No	28	14	
Drug intake	Daily	132	66	0.001
	Infrequently	40	20	
	They didn't't use it	28	14	
Form of taking	Pure folic acid	138	69	0.001
	With iron	34	17	
	With multivitamin	28	14	
Period of taking F.A	Before pregnancy	20	10	0.001
	First month	36	18	
	Second month	56	28	
	Third month	34	17	
	Fourth month & above	54	27	
Total		200	100	

Table.6:The attitude of pregnant women according to some variables related to folic acid (F.A)

Attitude				
Variables		Number	percent %	p
Do you agree with changing diet in pregnancy?	Yes	166	83	0.001
	No	12	6	
	I don't know	22	11	
What do you think the best time to take it?	Before pregnancy	44	22	0.001
	First month	68	34	
	Second month	12	6	
	third month	10	5	
	Fourth and above	0	0	
	I don't know	66	33	
Do you advise other women trying to conceive to take it?	Yes	168	84	0.001
	No	4	2	
	I don't know	28	14	
Total		200	100	

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