

The Awareness of Pregnant Patient about Effect of Antibiotics in Pregnancy

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Abstract

Background: Medication during pregnancy should be prescribed under caution as some medication has adverse effects on fetus health and they may be teratogenic. Antibiotics are widely used in pregnancy as a result of infections, adding that many pregnant women may administrate antibiotic without doctors' prescription. It is very important to assess the awareness of females about the effect of antibiotics during the pregnancy period. **Aim:** The aim of the study is to assess the awareness of pregnant patient about effect of antibiotics in pregnancy. **Subjects and Methods:** This study is cross-sectional study which was conducted in 2017 from September to October. Data were collected using interviewing questionnaire which investigated several variables including sociodemographics, clinical examination, clinical history, and clinical measurements. **Results:** Education and economic levels significantly affected the knowledge about reason for using antibiotic ($P=0.006, 0.002$), using of antibiotic against what ($P=0.005, 0.000$), education level affected the knowledge about the using of antibiotic without doctors' prescription ($P=0.01$), and while economic level influenced knowledge about the effect of antibiotic ($P=0.01$). **Conclusion:** There was good level of knowledge about using of antibiotic during pregnancy among females which was affected by economic and education levels.

Keywords: Antibiotic use, knowledge about antibiotics, pregnant women, Saudi Arabia

INTRODUCTION

There is no effective medicine with no adverse effects;^[1] in case of pregnancy, there must be special concern as all medications should be avoided whenever possible during the first trimester and medicines should be prescribed only when it is necessary and they are expected to provide greater benefits to mother than the fetus' risk.^[2,3] The number of pregnant women who used medication has been increased more than twofold in the last 30 years.^[4] Antibiotics are commonly used during pregnancy in various cultural and health-care settings.^[5] Infection during pregnancy needs treatment; however, it is a challenge to prescribe antibiotics during pregnancy as the fetus needs protection from possible side effects that may result from using of antibiotics.^[6] It was reported by a large randomized controlled trial that there was an increased risk of cerebral palsy in preterm babies who were born to women treated with antibiotics.^[7] Other studies showed that the prevalence of resistant organisms in the maternal gut flora increased and the Gram-negative bacteremia-onset rate was increased in newborns with low birth weight and these were associated with prenatal antibiotics.^[8-11] In several countries, there are

no efforts to make sure that pregnant women had enough awareness.^[12,13] It was reported in previous studies that there was poor in knowledge among pregnant women for certain health risks in pregnancy.^[12-15] One study showed that women were unsure and more restrictive about medicinal uses during pregnancy.^[16] A survey from Ethiopia revealed that more than half of pregnant women used over-the-counter medications during pregnancy and the majority of them used antibiotics and analgesics.^[17] No previous study had assessed the knowledge of pregnant women about the effect of antibiotic in pregnancy, so this was our aim in this study.

SUBJECTS AND METHODS

Data collection and study design

This is a cross-sectional study conducted on 253 patients who were seen in 2017 from September to October. The

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Access this article online

Quick Response Code:



Website:
<http://www.jmau.org/>

DOI:
10.4103/JMAU.JMAU_56_18

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How to cite this article: Alsaleh R, Gari S, Gari M. The awareness of pregnant patient about effect of antibiotics in pregnancy. *J Microsc Ultrastruct* 2019;7:72-7.

sample design was nonprobability convenient sampling; data were collected on the visit of the patient to the outpatient clinic using interviewing questionnaire which investigated several variables including sociodemographics such as age, gender, area of residence, and hospital visits, clinical examination, clinical history, clinical measurements including vital signs (blood pressure [BP] and temperature), anthropometric measurement (height and weight), investigations (routine or specific), managements (therapeutics, symptomatic, counseling, and referral), and outcome of the disease.

Statistical analysis

Data were analyzed using SPSS software for PC (IBM version 22, USA), data were analyzed using subroutine descriptive frequency tables, bar charts, pie charts, *P* value, Chi-square, and standard deviation for continuous variables; of this study, the level of significance was 0.05 (5%).

RESULTS

In the present study, there were 6.7% of females in the age range of 15–20 years, 54.9%, 30.6%, and 7.8% in the age range of 20–30, 30–40, and 40–50 years, respectively. The large majorities, i.e., 84.6%, were Saudi and 15.4% only were non-Saudi. There were 4.1% of females uneducated, 7.5% had less than high school education, 31% had high school education, and 57.5% had bachelor degree. Most of them, i.e. 76.1%, had moderate economic level, while 17.5% and 5.2% had high and low economic levels, respectively, and 1.1% could not classify their economic level. 39.2% of women had two and more children, 35.4% reported that it was the first time to have children, and 25.4% had only one child. On visit, 20.9% were in the first trimester, 41.4% were in the second trimester, and 37.7% were in the third trimester. Most of participants, i.e. 60.4%, were following up at one medical center, 35.1% in two medical centers, and 4.5% in three medical centers. Few percent, i.e. 2.6%, suffered abortion for more than two times, 7.5% suffered it twice, and 27.2% had abortion one time, whereas 62.7% did not suffer abortion before. The large majority, i.e., 85.8%, of participants had no health problem, while 4.1%, 6%, and 4.1% were suffering BP, diabetes, and urinary tract infection, respectively. The answers of females about maternal and neonate characteristics as well as females’ knowledge on antibiotics are shown in Table 1. The most commonly used treatment agent was insulin 32%, few percent of females, i.e., 17.5%, used antibiotic during pregnancy, the most common reason for usage was urinary tract infection in 39.1% of females, and it was used more in the second semester of pregnancy in 44.7% of females. There were 55.3% used antibiotic for 4–7 days and the large majority, i.e., 91.5%, were using it according to doctor’s prescription and they prescribed it during the clinic visit for 87.2%. Only 14.9% knew the antibiotic brands; Amoxi, Augmentin, and Colfax, were the most known brands; each was reported by

Table 1: Maternal and baby characteristics and knowledge of females

Question and answers	Percentage
Kind of treatment	
Pain killer (Panadol)	16
Insulin	32
Antibiotic	16
Diet	8
Glucophage	8
Lasix	4
Adalat	4
Herbal drinks	4
Drinking excess of water	4
Methyldopa	4
Using antibiotic during pregnancy	
Yes	17.5
No	82.5
Using antibiotics during	
First trimester (until week 12)	42.6
Second trimester (week 13-week 27)	44.7
Third trimester (above 28 weeks)	23.4
Duration of using antibiotics (days)	
≤3	29.8
4-7	55.3
8-10	10.6
>10	4.3
Reasons for using antibiotics	
Dental problems	19.6
Urinary tract infection	39.1
Vaginal infection	26.1
Others (sore throat)	15.2
Do you know antibiotic brand	
Yes	14.9
No	85.1
Brand of antibiotics	
Amoxi	25
Augmentin	25
Colfax	25
Kongstin	12.5
Metronidazole	12.5
How did you use antibiotic	
Doctor’s prescription	91.5
Pharmacist’s recommendation	8.5
If he/she was by doctor, it was through	
Clinic visit	87.2
Social media	4.3
Telephone call	8.5
Did you use antibiotics through your previous pregnancy	
Yes	14.9
No	85.1
How long did you use antibiotic during your previous pregnancy (days)	
≤3	57.1
4-7	0
8-10	28.6
>10	14.3

Contd...

Table 1: Contd...

Question and answers	Percentage
Did your baby suffer of any health problem	
Yes	11.1
No	88.9
What's the main reasons for using antibiotic through pregnancy	
High temperature	41
Common cold	37.3
Abdominal pain	17.5
Dental problems	31
Others	21.6
Is there any useful bacteria in human's body	
Yes	78
No	22
Is there any harmful bacteria in human's body	
Yes	64.9
No	35.1
For your point of view, can pregnant woman use antibiotic	
Yes	48.9
No	51.1
What is the side effect of using antibiotic through pregnancy	
Fetal abnormalities	59.7
Killing useful bacteria	33.6
Diarrhea	41.8
Refusing treatment	20.9
For your point of view, antibiotic for	
Bacterial infection	52.2
Parasitic infection	6.7
Viral infection	28.7
Others	12.3
For your point of view, at which of the below the antibiotic affects the most	
Breastfeeding only	7.1
Pregnant women only	16.8
Both of them	60.8
Don't know	15.3
What do you think about using antibiotic without doctor's prescription	
Wrong behavior	85.4
Right behavior	14.6

25% of participants. Few percent of females, i.e., 14.9%, reported using antibiotics in their previous pregnancies, 57.1% reported using antibiotics for ≤ 3 days, and the most common reason was high temperature reported in 41%. 51.1% said that pregnant women cannot use antibiotic, the most reported side effect of using antibiotic during pregnancy was fetal abnormalities 59.7%, followed by diarrhea 41.8%, and then killing useful bacteria and refusing treatment 33.6% and 20.9%, respectively. The large majority of women, i.e. 88.9%, reported no health problems suffered by their babies, while 11.1% reported that their babies had health problems. 78% of the women reported that there were useful bacteria in the body, while 64.9% reported having harmful bacteria in the body. Most of the participants

52.2% stated that antibiotic was used for bacterial infection, 60.8% stated that antibiotic affected both breastfeeding and pregnant women, and the large majority of females 85.4% knew that it was wrong behavior to use antibiotic without doctors' prescription.

By investigating factors that may influence the knowledge of females, it was found that education level was significantly affected the knowledge about reason for using antibiotic ($P = 0.006$), using antibiotic for ($P = 0.005$), and using antibiotic without doctors' prescription ($P = 0.01$) [Table 2]. Further, economic level significantly affected the knowledge about reason for using antibiotic ($P = 0.002$), using antibiotic for ($P = 0.000$), and the effect of antibiotic ($P = 0.01$) [Table 3]. Different variables were assessed whether they influence each other; age and previous abortion did not affect the duration of using antibiotic ($P = 0.1$ and 0.2 , respectively); also, reasons of using antibiotic were not affected by the knowledge of brands ($P = 0.5$). Using antibiotic in the previous pregnancy was significantly associated with the method by which doctor prescribed the antibiotic ($P = 0.03$), and also, using of antibiotic during pregnancy was associated with the pregnancy stages ($P = 0.003$).

DISCUSSION

In the present study, we investigated the awareness of pregnant women about the effect of antibiotics in pregnancy. Knowledge of patient is important to develop his/her beliefs.^[18,19] A study from Sudan demonstrated that 15.2% never use medication during pregnancy.^[20] In Saudi study,^[21] it was found that antibiotics represented 2.6% among other types of medications to be used among pregnant women. A study from the UK showed that one-third of the pregnant females received at least one antibiotic during their pregnancies and 14% of them received at least one antibiotic in each trimester; the study also reported that some antibiotics were prescribed more frequently as a result of urinary tract infection.^[22] A study was conducted on pregnant women in rural Ghana revealed that 65% of pregnant women administrated antibiotics at some stage of pregnancy.^[23] The large majority of pregnant women in this study did not use antibiotic during the current pregnancy (82.5%), and most of those who used it were during second trimester (44.7%) and duration ranged from 4 to 7 days (55.3%); the main reason for using antibiotic was infection either urinary tract infection (39.1%) or vaginal infection (26.1%). 91.5% of females used antibiotics according to the prescription of doctors and through clinic visit (87.2%). In addition, higher percent (85.1%) of females did not use antibiotics in their previous pregnancies, most of those who used it reported using it during ≤ 3 days, and the most common reason for using it was high temperature (41%). In the current study, the large majority of women reported that their babies had no health problem (88.9%). 51.1% of participants thought that pregnant women should not use antibiotic, where 59.7% of them stated that the side effect of

Table 2: Correlation between education level and knowledge about antibiotics

Variables	Education level (%)				P
	Uneducated	Less than high school	High school	Bachelor degree	
How did you use antibiotic					
Doctor's prescription	4.7	11.6	23.3	60.5	0.1
Pharmacist's prescription	0	0	75	25	
What's the main reasons for using antibiotic through pregnancy					
High temperature	7.3	5.5	37.3	50	0.006
Common cold	10	7	28	55	
Abdominal pain	4.3	4.3	34	57.4	
Dental problems	1.2	8.4	25.3	65.1	
Others	1.7	10.3	27.6	60.3	
For your point of view, can pregnant woman use antibiotic					
Yes	5.3	3.8	29	61.8	0.08
No	2.9	10.9	32.8	53.3	
What is the side effect of using antibiotic through pregnancy					
Fetal abnormalities	5	7.5	28.1	59.4	0.3
Killing useful bacteria	4.4	3.3	27.8	64.4	
Diarrhea	2.7	6.3	38.4	52.7	
Refusing treatment	5.4	7.1	33.9	53.6	
For your point of view, antibiotic for					
Bacterial infection	4.3	6.4	30.7	58.6	0.005
Parasitic infection	5.6	5.6	27.8	61.1	
Viral infection	3.9	1.3	33.8	61	
Others	3	27.3	27.3	42.4	
For your point of view, at which of the below the antibiotic affects the most					
Breastfeeding only	0	10.5	36.8	52.6	0.7
Pregnant women only	4.4	4.4	31.1	60	
Both of them	4.9	6.1	30.7	58.3	
Don't know	2.4	14.6	29.3	53.7	
What do you think about using antibiotic without doctor's prescription					
Wrong behavior	2.6	7.9	29.7	59.8	0.01
Right behavior	12.8	5.1	38.5	43.6	
Did you use antibiotics through your previous pregnancy					
Yes	4.3	10.6	27.7	57.4	0.8
No	4.1	6.8	31.7	57.5	

using antibiotic was fetal abnormalities, and 60.8% mentioned that antibiotic affects both pregnant women and breastfeeding. The large majority of females knew that antibiotics are used for infections, and it was wrong behavior to administrate antibiotic without prescription from the doctors. In one study, it was found that 12.2% of women thought that all medications could be harmful to fetus.^[20] A previous study demonstrated that 91% of pregnant women had no awareness about the effect of medication in the health of the fetus.^[24] Several trials were made to identify the pregnant women sociodemographic characteristics that are correlated with attitudes and beliefs regarding medications.^[16,25-27] Socioeconomic level and education were reported. The present study revealed that education and economic levels significantly affected the knowledge about antibiotics. Those with bachelor degree and moderate economic level were had more awareness than

other participants. Further, using of antibiotics was associated with being in the last stage of pregnancy which reflects the awareness of females toward the side effects of antibiotic in the first stages of pregnancy.

CONCLUSION

There was a good awareness of pregnant women about using antibiotic and its side effects during pregnancy. This awareness was represented in using antibiotic by prescription of doctors in the clinic and their knowledge that using it by themselves was a wrong behavior, not using it in the first stages of pregnancy, and their knowledge about the uses of antibiotics; also, most of participants did not administrate antibiotics during their previous or current pregnancy. This was the first study to assess the knowledge of pregnant

Table 3: Correlation between economic level and knowledge about antibiotics

Variables	Economic level (%)				P
	Don't know	Low	Moderate	High	
How did you use antibiotic					
Doctor's prescription	2.3	11.6	65.1	20.9	0.5
Pharmacist's prescription	0	0	50	50	
What's the main reasons for using antibiotic through pregnancy					
High temperature	0.9	8.2	72.7	18.2	0.002
Common cold	1	9	63	27	
Abdominal pain	2.1	4.3	66	27.7	
Dental problems	0	6	83.1	10.8	
Others	1.7	5.2	86.2	6.9	
For your point of view, can pregnant woman use antibiotic					
Yes	2.3	5.3	71	21.4	0.1
No	0	5.1	81	13.9	
What is the side effect of using antibiotic through pregnancy					
Fetal abnormalities	0.6	4.4	79.4	15.6	0.5
Killing useful bacteria	2.2	4.4	72.2	21.1	
Diarrhea	0	5.4	74.1	20.5	
Refusing treatment	1.8	8.9	71.4	17.9	
For your point of view, antibiotic for					
Bacterial infection	1.4	3.6	81.4	13.6	
Parasitic infection	0	11.1	33.3	55.6	
Viral infection	0	5.2	72.7	22.1	
Others	3	9.1	84.8	3	
For your point of view, at which of the below the antibiotic affects the most					
Breastfeeding only	5.3	5.3	68.4	21.1	0.01
Pregnant women only	0	2.2	71.1	26.7	
Both of them	0	6.1	75.5	18.4	
Don't know	4.9	4.9	87.8	2.4	
What do you think about using antibiotic without doctor's prescription					
Wrong behavior	1.3	4.8	77.3	16.6	0.5
Right behavior	0	7.7	69.2	23.1	

women about antibiotics and it showed good knowledge; however, further studies are recommended to include other areas of the country.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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