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Awareness of Mothers about the Usage of Antibiotics and the Risk of Preterm Baby

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Background: Pregnant women are exposed to a wide range of medications, including antibiotics. Although antibiotics are many times absolutely important to prevent and treat infections as well as prevent premature labor, their overuse poses a threat to the growing fetus as well as the mother. The ill-effects of antibiotic over-use and having them without prescription can cause developmental abnormalities in the fetus, known as teratogenicity. They could also cause maternal allergic reactions, as well as long term effects on the child's immunity and growth in future.

Aim: In this study we aim to study the knowledge and attitude of pregnant women toward usage of antibiotics and risk of preterm baby.

Methodology: We conducted a cross-sectional study, of 2470 women who presented in king Abdulaziz University, Jeddah, Saudi Arabia from April 2017 to December.

Conclusion: We noted that most mothers were aware of that they must not take antibiotics without prescription while pregnant, especially for ailments such as common cold and abdominal pain. However, the pharmacists must be regulated for unnecessary over-dispatching of antibiotics, especially without confirming the pregnancy status of the costumers.

Keywords: Mothers, Antibiotics, Preterm Baby**.**

INTRODUCTION

A big number of women during their pregnancy are exposed to some type of medication. Drugs that are prescribed during pregnancy can induce a teratogenic effect on the developing fetuses. The most frequently prescribed types of medication during pregnancy and lactation are antibiotics [1]. Recent estimates show that more than 40% of pregnant women receive some type of antibiotic immediately before delivery, mostly for preventing neonatal Group B *Streptococcus* (GBS) sepsis or as a cesarean prophylaxis [2-4].

In addition, antibiotic indications during pregnancy are also prescribed for screening and managing asymptomatic bacteriuria and bacterial vaginosis. Unfortunately, on many occasions, antibiotics are overused to treat respiratory and genital infections resulting in the big majority of fetuses being exposed to antibiotics in utero. Antibiotics are very helpful in overcoming the preterm labor episode associated with infectious cause, and thus prolong pregnancy. A continuing inflammatory environment due to infection could have led to premature contractions as well as fetal brain injury and thereby resulting in cerebral palsy [2].

On the contrary, a big amount of data shows that antibiotic use is not exempt from serious adverse effects. Antibiotics are associated with allergic reactions, cardiac arrhythmia, gastrointestinal troubles, and death [5]. Additionally, development of multi-resistant bacteria a major challenge associated with antibiotic overuse [6; 7]. Antibiotic are inappropriately overused to treat urinary, genital, respiratory, ear, nose and throat has increased. The widespread consumption of antibiotics is related to maternal anaphylaxis at a rate of 2.7 cases per 100,000 deliveries [8]. Maternal anaphylaxis has a distressing effect on fetal oxygenation due to maternal hypotension which compensates the fetus for decreased blood flow putting the fetus at risk of hypoxic-ischemic encephalopathy as well as permanent central nervous system damage [9; 10].

Aside from anaphylaxis, it is proposed that exposure to antibiotics through fetal and neonatal life can lead to development of allergic diseases due to their likely long-term effect on gut microbiota of both the fetus and the mother, as well as maternal vaginal microbiota. Antibiotic use might interrupt and interfere with the early gut colonization of the infant with microbiota [11]. As a result of this delay

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and abnormal colonization, it can interfere with the maturation and development of the child's immune system later in life, and therefore play a part in the development of allergy and disease [12; 13].

METHODS

Study setting: King Abdulaziz University Hospital, Jeddah, Saudi Arabia.

Study design: a Cross sectional study among pregnant women presented in King Abdulaziz university hospital. **The study was done after approval of ethical board of King Abdulaziz university.**

Data collection: occur between April and December 2017

Data analysis: All data were entered, coded and analyzed using statistical package for social science (SPSS, version 22). The distribution of the data was evaluated for normality with. Qualitative variables were reported as proportions, with the mean ± standard deviation calculated for quantitative variables. For all analyses, a p-value <0.05 was considered significant.

RESULTS

As presented in table (1) 826 (33.5%) mothers used antibiotics during antenatal period, 1643 (66.5%) %) mothers did not use antibiotics during their pregnancies.

Table (1): Using antibiotics during antenatal period

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	826	33.4	33.5	33.5
	no	1643	66.5	66.5	100.0
	Total	2469	100.0	100.0	
Missing	System	1	.0		
Total		2470	100.0		

Table (2): 488 (19.8%) mothers think that they have to take antibiotics for cold and flu, 1982 (80.2%) mothers do not think that they have to take antibiotics for cold and flu. 91 (3.7%) mothers think that they have to take antibiotics for abdominal pain, 2379 (96.3%) mothers do not think that they have to take antibiotics for abdominal pain. 789 (31.9%) mothers think that they have to take antibiotics for dental pain, 1681 (68.1%) mothers do not think that they have to take antibiotics for dental pain. 697 (28.2%) mothers think that they have to take antibiotics for fever, 1773 (71.8%) mothers do not think that they have to take antibiotics for fever. 1066 (43.2%) mothers think that they have to take antibiotics for other reasons, 1404 (56.8%) mothers do not think that they have to take antibiotics for other reasons.

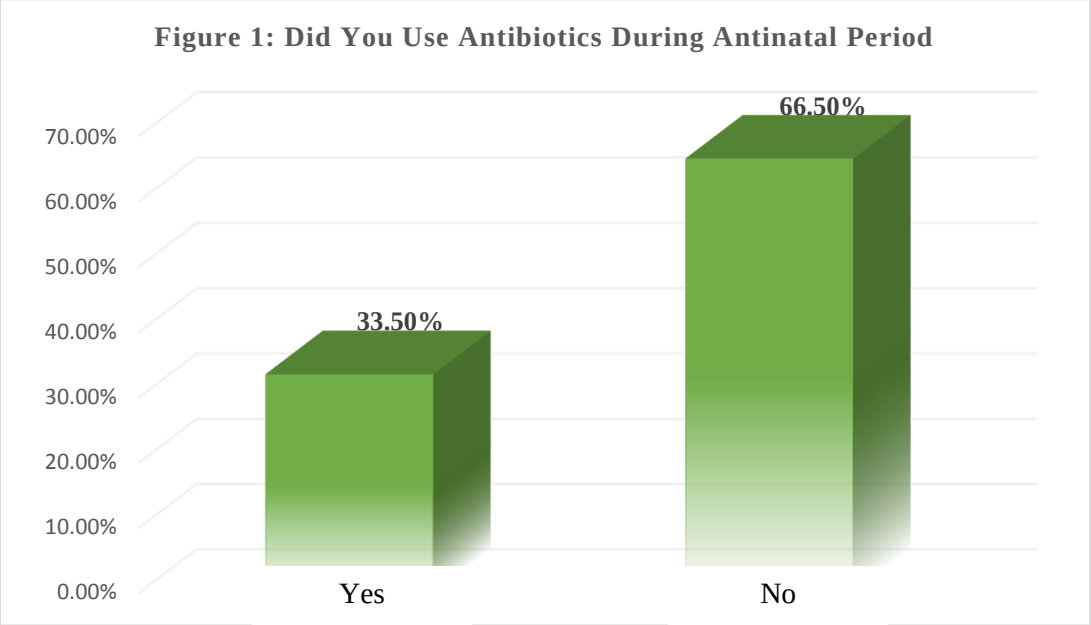
Table (2): When you need to take antibiotics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1982	80.2	80.2	100.0
	Cold & flu	488	19.8	19.8	19.8
Valid	No	2379	96.3	96.3	96.3
	Abdominal pain	91	3.7	3.7	100.0
Valid	No	1681	68.1	68.1	68.1
	Dental pain	789	31.9	31.9	100.0
Valid	No	1773	71.8	71.8	71.8
	fever	697	28.2	28.2	100.0
Valid	other	1066	43.2	43.2	100.0
	Total	2470	100.0	100.0	

32 (1.3%) mothers think they can take antibiotics without a prescription in table (3), 2428 (98.7%) mothers think they cannot take antibiotics without a prescription

Table (3): Is it safe for pregnant mom to take antibiotics without prescription

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	1.3	1.3	1.3
	no	2428	98.3	98.7	100.0
	Total	2460	99.6	100.0	
Missing	System	10	.4		
Total		2470	100.0		



DISCUSSION

Congenital abnormalities caused by human teratogenic medications account for about 1% of total congenital abnormalities. Around 3-5% of live births are complicated by a congenital defect each year adding up to 120,000 babies. Therefore in 1979, Food and Drug Administration established a system that regulates the teratogenic risk of drugs by bearing in mind the quality of data from various human and animal studies. Consequently, FDA categorized medications used in pregnancy into five classes, namely A, B, C, D and X. Category A is described as the safest category and category X is considered an absolute contraindication in pregnancy[14] . Unfortunately, women taking medication during pregnancy has more than doubled in the last three decades. Newer study shows that between 65%-94 % of women have taken at least one prescription drug during pregnancy and around 70%

No

of women took a medication in the first trimester, which is the period of organogenesis of the fetus. This number includes over the counter medications as well as herbal supplements[15].

The attitude in Saudi Arabia towards antibiotic use is alarming. A 2011 cross sectional study in Riyadh found that 77.6% of pharmacies visited during the study dispensed antibiotics without a medical prescription and 95% were dispensed without the patient's request. This study also found out that none of none of the pharmacists asked about antibiotic allergy and only 23% asked about pregnancy status [16]. Our study focused on the attitude of pregnant women specifically towards antibiotic use. The majority (66.5%) of women we surveyed did not use antibiotics during their pregnancy. We also noticed that when asked if antibiotics should be taken for cold/flu, abdominal

pain, dental pain, fever or other reasons during pregnancy, most women responded with no. Also, only 1.3% of those surveyed thought that antibiotics can be taken without a medical prescription. This indicates that the majority of pregnant women in Saudi Arabia are well informed about the dangers of antibiotic abuse and about their correct method of usage. This data is in line with other previous studies worldwide and in Saudi Arabia indicating that mothers are more cautious about taking medications during pregnancy [17-19].

CONCLUSION

It is possible that antibiotic abuse that has been reported in Saudi Arabia is more to blame on pharmacist negligence rather than patients' lack of knowledge. This study shows that patients usually know that antibiotics are not to be taken without a medical prescription and that they shouldn't be taken for common ailments like pain or cold. This could be due to proper patient education on part of the physicians. This data coupled with previously mentioned studies begs research into pharmacist attitude towards dispensing medication, and more awareness must be created among patients.

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