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Study On Nurses' Knowledge Regarding Some Medications Induce Congenital Malformations During Pregnancy

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Abstract. Many of the medications used to treat psychological illnesses, antibiotics, and other treatments for pregnant women later appear to have negative effects on the fetus during pregnancy or birth, and some of them appear after different age periods. The current study aims to familiarize nurses with these medications because of their major role in preparing and administering medications, drug doses, and medication administration periods. Female and male nurses with different academic levels and years of experience in different hospital departments participated in the questionnaire for a group of medications that cause birth defects. Most Participants have knowledge that induces birth defects or malformation during pregnancy especially medicines that are commonly used, also knowledge may correlate with their academic level or experience

Highlights:

1. Nurses' knowledge of drugs causing birth defects during pregnancy.
2. Awareness varies by academic level and work experience.
3. Emphasizes nurses' role in safe medication administration.

Keywords: Birth defects, Pregnancy medications, Nurse knowledge, Basra hospitals, Congenital malformations

Introduction

The use of some drugs induces some Congenital defects in nearly about 5% of all births, including anatomic alterations, and physiological disorders (such as mental retardation). Genetic abnormalities, physical, viral, or chemical factors can all be causes [1]. Class X drugs are teratogenic [2]. Approximately 1% of congenital abnormalities with a recognized etiology are problems related to medication therapy. This indicates that a practical method of protection for fertile, and particularly pregnant, women is to adopt a cautious mindset and take medications appropriately. There are now about 25 medications having known teratogenic effects, although new pharmaceutical products are always being developed [3]. The inhibitors of the angiotensin-converting enzyme (ACE) ACE inhibitors should not be taken while pregnant, particularly in the second and third trimesters. The administration is linked to delayed intrauterine growth, oligohydramnios, cranial ossification abnormalities, and kidney damage [4, 5].

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Neurologic drugs have the highest teratogenic potential. The main purpose of antiepileptic medications (AEDs) is to stop seizures, although they are also used to treat neuropathic pain, migraines, and mental illnesses [6]. AEDs can result in birth abnormalities when taken in modest dosages and structural deformities when used in larger quantities. Because of liver necrosis and abnormalities of the bones and teeth, antimicrobial medications such as tetracyclines, a bacteriostatic class of antimicrobials that bind to the 30S ribosomal subunit, are not recommended during pregnancy [7].

High doses of vitamin A, induce teratogenicity in pregnant women. by consuming too many foods high in vitamin A, taking vitamin A-containing nutritional supplements, or using medications that contain retinoids [8]. The nonsteroidal estrogen medication diethylstilbestrol (DES) readily crosses the placenta and can result in some problems in the fetus [9]. If given before the end of the first trimester, anabolic-androgenic drugs or excessive androgen production might result in labial fusion in female babies [10]. The type of potential abnormalities in the fetus's gestational age depends on the duration of drug exposure. As a result, significant anomalies are especially likely to occur during the first trimester of pregnancy, which is the critical time for organ creation [11].

Teratogenic drug competence and understanding are critical for healthcare providers. To avoid clinically significant drug interactions, a patient's whole medication list must be provided before a prescription is written. Doctors and other advanced care professionals need to be well-versed in drug interactions and possible hazards to the fetus. To respond to inquiries or concerns raised by other members of the healthcare team, pharmacists might do medication reconciliation. Pharmacists, nurses, and other medical personnel need to be proficient in patient education, medication administration, and monitoring [12].

Methods

To achieve the goal of the current study, regarding medications, preparations, and factors that cause congenital malformations during pregnancy, 50 male and female nurses working in some Basra teaching hospitals participated in a questionnaire. The questionnaire included demographic information about gender, years of experience, and work location. The second axis is knowledge about the medications that are used to treat

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some diseases of pregnancy and some other factors. The data was analyzed to extract frequencies, percentages, and mean scores.

Result and Discussion

Pregnancy-related drugs taken by the mother may be teratogenic, meaning the embryo or fetus may develop abnormally. Many maternal diseases require treatment, even when such exposures may be avoidable. For instance, a medication with a recognized teratogenic potential may be the most effective treatment for autoimmune illnesses, cancer, and epilepsy, leaving patients and prescribers to make difficult treatment choices [13, 14]. Male reproductive problems such as hypospadias and cryptorchidism have been linked to hormones, including estrogens and other hormones during pregnancy [15]. The study's findings indicate that the majority of nurses who answered the questionnaire know the medications given to pregnant women that cause birth defects, whether during pregnancy or after birth. Table 2 shows the significant mean score for most of the medications and preparations that cause malformations.

Table 1- demographic characteristic

		Frequency	percentage
Gender	**male**	**10**	**20**
	female	**40**	**80**
Education level	**nursing secondary school**	**18**	**36**
	Deplumate	**23**	**46**
	Bsc.	**11**	**22**
	Ph.D.	**0**	**0**
field of work	**ICU**	**5**	**10**
	Emergency	**6**	**12**
	medicine	**7**	**14**
	others	**32**	**64**

According to this table, the majority of the nurses were female. This result agrees with numerous studies [16-21] Which mentions that most of the participants were female.

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Also, according to this table, most of the nurses had diploma graduates. These findings align with several studies [22-27] which mentions that most of the nurses had diploma graduates.

This study demonstrated the majority of the study sample under the field of work worked in different parts of the hospitals. These findings agree with several studies [28-32] which mentions that most of the sample works in different parts of the hospital.

Table 2- Nurses' Knowledge regarding medication used during pregnancy

Domains	know		don't know		not sure			
	F	%	F	%	F	%	MS	S
Mental drags								
Serotonin Reuptake Inhibitors	25	50	4	8	21	42	2.08	S
Benzodiazepines	40	80	8	16	2	4	2.76	S
Accutane	21	42	13	26	16	32	2.1	S
Thalidomide	29	58	7	14	14	28	2.3	S
Antibiotics								
Nitrofurantoin	26	52	18	36	21	42	2.7	S
Sulfonamides	31	62	4	8	15	30	2.32	S
Tetracyclines	22	44	18	36	10	20	2.24	S
NSAIDs								S
Erythromycin	30	60	18	36	12	24	2.76	S
Azithromycin	30	60	16	32	4	8	2.52	S
Ciprofloxacin	25	50	15	30	10	20	2.3	S
Vaccines								
Rubella vaccine	22	44	17	34	21	42	2.42	S
varicella vaccine	28	56	10	20	12	24	2.32	S
Influenza (flu) vaccine	22	44	13	26	15	30	2.14	S
Tetanus-diphtheria-pertussis (Tdap) vaccine	27	54	15	30	8	16	2.38	S
COVID-19 vaccination	16	32	16	32	18	36	1.96	NS
Hormones								
Estrogen	27	54	13	26	10	20	2.34	S
Insulin	27	54	23	46	0	0	2.54	S
Androgens	19	38	12	24	19	38	2	S
Others								
Methyldopa	25	50	16	32	9	18	2.32	S

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Marijuana	27	54	14	28	9	18	2.36	S
Paracetamol	13	26	26	52	11	22	2.04	S
Vitamin A	30	60	19	38	1	2	2.58	S
Vitamin B6	25	50	19	38	6	12	2.38	S
Smoking	20	40	24	48	6	12	2.28	S
Excessive amounts of iodide and iodine	18	36	6	12	26	52	1.84	NS
1Alcohols	15	30	19	38	16	32	1.98	NS

One of the oldest known teratogenic agents is Thalidomide which causes embryopathy [33-35]. Serotonin reuptake inhibitors (SRIs) were examined in eight out of nine studies, as the most common class of drug associated with adverse drug effects [36].

A large dose of vitamin A 10,000 IU per day, consumed by mothers during pregnancy (>25,000 IU/day), may lead to malformations in children [37, 38]. showed that 55-605 of birth defects have unknown causes while others are known like rubella, fever, and syphilis infections [39, 40].

Conclusion

The study showed that participants in the questionnaire had knowledge of medications that may cause birth defects during pregnancy or after birth, and the percentages of knowledge varied for each medication.

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