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Awareness of Dental Interns to Treat Pregnant Patients

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Abstract

BACKGROUND: Pregnancy causes major changes in maternal physiology and metabolism, which may lead to increased susceptibility to oral infection.

AIM: Aim of this study is to assess the awareness of dental interns regarding the management of the dental needs of pregnant patients.

METHODS: A cross-sectional questionnaire survey was conducted among 188 interns of a private dental college in Saudi Arabia. The questionnaire comprised of 14 knowledge-based questions regarding their training, awareness and practice management of the pregnant patient in dental clinics. Four questions to record and evaluate their training, the number of pregnant patients treated by them and their confidence level in the dental management of the pregnant patient. Excel spreadsheet was used for mathematical calculations.

RESULTS: Almost 62% of our participants never treated a pregnant female during their training. About 65% of the interns knew using antibiotics, almost 55% have a clear idea of the safest NSAIDS, and 43% regarded local anaesthesia to be safe when used among pregnant females. Conversely, about 50% of the participants had no clear knowledge of the FDA category of drugs. Only 24% considered dental radiographs to be safe in pregnant patients. 57% thought to postpone the dental treatment in an acute active dental infection in expecting mothers. Results also showed a lack of confidence among interns to provide dental care to gestating female.

CONCLUSION: On analysing the results, we found that there is a need to improve the knowledge, awareness and confidence levels among the interns who are the future dentists treating these patients.

Introduction

Pregnancy is a distinctive phase in a woman's life, complemented by a variety of anatomic, physiologic, and hormonal fluctuations that can indirectly affect oral health. These comprise changes in the respiratory, cardiovascular, and gastrointestinal systems, as well as changes in the oral cavity and increased susceptibility to oral infection [1], [2]. Though these variations are normal for a pregnant female, they dictate the consideration and modifications in the treatment by any dentist in performing the treatment or prescribing medication.

Injudicious use of medications during pregnancy can sometimes be lethal to the fetus. The wise choice should be made to determine the medical condition of the mother and the fetus, and if the medical treatment is unavoidable, only then the permitted drugs should be prescribed for a pregnant lady [3], [4]. All physicians and the general public should bear in mind that certain untreated dental conditions can as well be dangerous for both the mother and the baby [3]. Some dentists have a false belief that the dental procedures might cause bacteremia which might lead to spontaneous abortions or preterm labour. Although, few dental procedures are contraindicated in certain complicated pregnancies [1], [5], [14] The need to minimise systemic infection and disease is of utmost importance during this period. Different mechanisms have been suggested for this effect of periodontal disease on the fetus; one such proposed mechanism is seeding of urinary tract infections with bacteria from periodontal disease in mother. Dental hygiene

procedures, such as prophylaxis, deep scaling, or root planning are permitted in any trimester of normal pregnancy [1], [6], [7], [8], [9]. In case of deep dental caries causing severe pain or acute infection in an otherwise healthy gestational woman, the dentist should offer required dental care no matter what the patient's phase of pregnancy.

Many patients and dentists have the misconception about radiation exposure in dentistry. Regarding the dental radiographs, it is safe to be taken for pregnant patients by following all the protective measures like using high-speed films, paralleling technique, covering with a lead apron and thyroid collar. It is expected that the average full-mouth dental survey may expose the fetus to 1 X 10-5 rads of radiation, far below the teratogenic risk to the unborn child [8], [9], [10].

It is indicated by many researchers that comprehensive oral examination and routine oral health maintenance of pregnant patients is mandatory to improve the overall outcome of the patient and the fetus [11], [12], [15], [16]. So, the present interns who are the future dentists play a vital role in treating pregnant patients in society. The aim of the present Knowledge, Attitude and Practice (KAP) study is to know the knowledge, awareness and attitude of the dental interns in treating the pregnant patients in Riyadh.

Material and Methods

Our cross-sectional survey was conducted using a self- structured questionnaire among the dental interns between December 2105 to March 2016 in a private dental college in Riyadh, Saudi Arabia. Some of them who just entered the internship and some of the participants were about to finish the postings. The questionnaire comprised of multiple-choice questions on knowledge, attitude and awareness towards doing's and don'ts in the treatment of pregnant patients. The content authenticity was pretested on a random sample of 30 population to ascertain feasibility, strength and rendition of responses. It was developed in consultation with an oral medicine specialist and gynaecologist to improve its content validity.

The first section of the questionnaire contained the demographic data of the interns (Figure 1). Followed by the queries regarding the treatment management of a pregnant patient on different occasions in a dental clinic. The survey questionnaire was distributed as hard copy randomly to about 200 Saudi dental interns in Alfarabi dental college, and the participates were instructed to choose only one correct and appropriate answer which they feel is correct for each particular question, the filled forms were collected after half an hour. The participants who were willing to participate in the study were included, and only those who completely answered the questionnaire were considered in the study. All the 200 interns available in the university were approached, 188 (94%) participated in this study, among which 83 (44%) were males while 105 (56%) were females. Few participants (6%) submitted incompletely filled forms. So, they were excluded from the study.

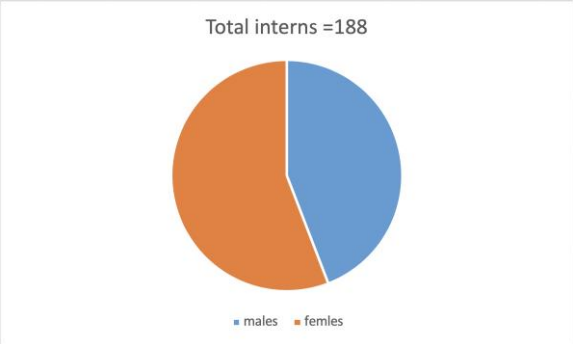

Figure 1: Demographic data of the participants

Statistical Analysis

Analysis of survey results was performed using the Statistical Package for the Social Sciences SPSS Version 18 (SPSS Inc; Chicago, IL, USA) differences between the percentage of responses for all the questions separately for male and female interns' students were statistically assessed with Chi-square test (Significance level was set at $P \leq 0.05$).

Results

The study is conducted among 188 interns in Al Farabi dental college at Riyadh, among which 83 were males, and 105 interns were females. When asked about the knowledge-based question 35% interns answered that the curriculum centred training to treat a pregnant patient in dental college was not sufficient. A group of 33% of the interns suggested that they depend on lectures and books for the treatment concerned to a pregnant patient and 55% interns rely on internet resources for the dental management of pregnant patients.

When posed for the experience in treating a pregnant female, 33% interns admitted that they never treated any gravid female in dental setup and over 57% of interns treated at least (1 to 5) pregnant patients during their course of study. For the question which probed the confidence level of the interns in managing a pregnant female, 55% of interns disclosed that they were not confident to treat a pregnant patient for dental treatment.

About 83% of interns know that the best period to do dental treatment for a pregnant female is during the second trimester. About 50% of interns were not aware of whether it is safe to use mercury restorations in a pregnant female. And 30% of the participants never heard of FDA classification of the 5-categories of drugs which determine fetal risks of medications. 12% of males are aware of the FDA classification of drugs and their safety. Only 8% of females have clear knowledge about the FDA classification of drugs (Table 1).

Table 1: Awareness of dental interns to treat pregnant patients

Sl. no	Question	Options	Total (n = 188)	M	F	P Value
1	For pregnant patients, is it safe to use mercury restorations?	Yes	30%	8%	22%	0.057
		No	20%	12%	8%	
		I do not know	50%	23%	27%	
2	What is the best period to treat pregnant women?	First trimester	10%	5%	5%	0.03*
		Second trimester	83%	33%	50%	
		Third trimester.	7%	4%	3%	
3	Are you aware of the FDA classification of the 5-categories of drugs which determine fetal risks of medications?	Yes, aware of.	20%	12%	8%	0.054
		Never heard before	30%	20%	10%	
		Little knowledge	50%	20%	30%	
4	Which antibiotic you prefer for pregnant women?	Tetracycline	20%	13%	7%	0.045*
		Amoxicillin	65%	32%	33%	
		Cefixime.	15%	5%	10%	
5	Which analgesics you prefer to use for pregnant women	Diclofenac	7%	2%	5%	0.071
		Paracetamol	55%	23%	22%	
		Ibuprofen.	38%	13%	25%	
6	Most common oral disease in pregnant patients?	Periodontitis	15%	8%	7%	0.065
		Gingivitis	55%	28%	27%	
		Ulcers.	30%	13%	17%	
7	What is the best comfortable position for pregnant women to sit in a dental chair for treatment?	Supine position	40%	24%	16%	0.061
		An upright position and turning to the right side	33%	10%	23%	
		Semi Reclined position with a pillow under right hip.	27%	11%	16%	
8	If pregnant women in 3rd trimester develop supine hypotension in the dental chair, what should be done?	Make the patient sit upright	40%	24%	16%	0.068
		Roll the patient to left side	35%	12%	23%	
		Raise the legs up	25%	12%	13%	
9	Does periodontal infection in pregnant women cause any effect on the fetus?	May lead to Preterm birth & low birth weight babies.	30%	12%	18%	0.13
		No effect on the fetus	35%	22%	13%	
		Congenital deformities.	35%	20%	15%	
10	An active dental infection like a dentoalveolar abscess in pregnant women requires?	Immediate treatment	23%	10%	13%	0.045*
		Postponed treatment till delivery.	57%	32%	25%	
		Only symptomatic treatment.	20%	8%	12%	
11	Diagnostic X ray in pregnant women is:	Permitted to take.	40%	26%	14%	0.17
		Absolutely contraindicated	36%	22%	14%	
		I do not know	24%	14%	10%	
12	Do pregnant women have a high risk of dental caries?	Yes.	40%	18%	22%	0.086
		No.	38%	27%	11%	
		Don't know.	22%	15%	7%	
13	Is local anesthesia safe to be used in pregnant patients in any trimester?	No	22%	15%	7%	0.048*
		Yes	43%	23%	20%	
		Don't know.	35%	20%	15%	
14	The best way to treat anxiety and fear for dental treatment during pregnancy is by?	Counseling and non-pharmaceutical methods.	46%	21%	25%	0.06
		Benzodiazepines and other sedatives	21%	15%	6%	
		Nitrous oxide sedation.	33%	21%	12%	

Majority of the participants (65%) opted Amoxicillin as the drug of choice to be prescribed for antibiotic coverage for pregnant patients, and the results were highly significant with P-value < 0.05. Almost 55% of interns assumed paracetamol to be the safest analgesic in gravid females, whereas 38% of the participants chose ibuprofen as the analgesic to be prescribed for expecting mothers. A nearly equal number of participants (28% males and 27% females) know gingivitis as a common oral disease among gestating females. The results showed a statistical significance where P-value < 0.05. The question regarding the best chair position for the pregnant patient during dental treatment, only 27% had the awareness that the semi-reclined position with a pillow under the right hip, is the best advice for a gravid female. And only 35% of the participants were aware that if a pregnant woman in 3rd trimester develops supine hypotension in the dental chair, the immediate care is to roll the patient to the left side. Merely 18% of females and 12% of males were mindful of the fact that periodontal infection can lead to preterm birth & low birth weight babies.

Almost 57% of the participants (with noteworthy p-value = 0.045) desired to postpone the treatment till delivery when there is a severe dental infection like a dentoalveolar abscess in a prenatal woman. Just about 35% interns (significant p-value = 0.048) were not having a clear idea if local anaesthesia was safe to be used in any trimester among expecting mothers. A group of 36% of the interns believed taking a radiograph is an absolute contraindication for pregnant women. For the query, the best way to treat anxiety and fear for dental treatment during pregnancy; 21% males and 25% females answered to use non –pharmacological methods.

Discussion

Recently there were few studies done on dental interns in different parts of the world to assess the knowledge and awareness to treat the pregnant female. We wanted to know the response from our interns and to help them have better confidence in treating a gravid female. Usually, many of them work in private practice after their graduation, so they need to be competent about the emergencies and have enough knowledge regarding what kind of prescription they can advise and what treatment is permitted in an expecting mother.

With this aim, the study was conducted to evaluate the knowledge and increase the awareness

Among dental interns to treat pregnant patients, it is crucial to be aware of the oral health needs of the pregnant patient and preventive care, dental treatment and drugs that can be provided safely during pregnancy. The results give us a picture of interns, in terms of how they are equipped to treat a

pregnant patient. However, the difference between male and female interns and their confidence levels could be due to the difference in the amount of exposure to patients. Also, the results of this study may not have external validity. About 60% of surveyed dental interns think that the information that was thought about dental management of pregnant women in dental school was not enough or it is just little. The results were in correlation with a similar study done where 70% of participants declared that the knowledge and training received through their curriculum was not enough [16]. About 62% of our participants never treated pregnant women during their training. And 10% of our interns have the experience of treating at least 5 or more expecting mothers in the dental clinics. Almost 55% of our participants were not confident in treating a pregnant mother in a dental clinic. In a study conducted among the interns in India, 35% of the participants never treated a pregnant patient, and only 57% participants treated less than 5 pregnant patients, and only 21% of the participants were not confident to treat such patients [16].

Approximately the similar results were recorded Tantradi P et al., in a study conducted on general dentists where two-thirds of the participants were interested in receiving continuing dental education (CDE) regarding dental care in expecting mothers [16]. In our study, 60% of the respondents were eager to update their knowledge through CDE programs. Nearly 55% of our interns were aware that gingivitis was the most common oral manifestation among gestating female, and the results were in contrast to previous two different studies where 92% and 81% participants respectively agreed that pregnancy increases chances of gingival inflammation [17], [18], [19] the disparity in the results could be attributed to the sample population in one study being the medical doctors, and in another study the sample of dental interns were from different universities and hospitals. Around 83% of our participants thought that 2nd trimester is the safest for performing any dental treatments; analogous results were recorded in previous research where 87% of interns stated 2nd trimester being safe for a pregnant lady to undergo any dental treatment [16], [18].

Regarding the diagnostic dental X-ray in pregnancy, 36% believed it is contraindicated,24% did not have a clear idea about the safety of dental radiation. It shows that most of them were not having the proper knowledge about the dose of dental radiation. In a previous study, almost 63% of the participants considered using the diagnostic dental x-ray among pregnant patients. As the fetus sizes grow, there is elevated discomfort for the patient in the supine position [1]. For gestating females, it is advised not to position them in the supine position during dental treatment to avoid supine hypotension and deep venous thrombosis.

Contrary to the previous study where 33% of the interns were aware of the right patient position during dental treatment, only 27% of our participants were aware that semi-reclined position with a pillow under right hip is best advocated for these patients [16]. 35% of our interns were aware that if a pregnant patient develops supine hypotension during dental treatment, it is best to roll the patient to the left side. It is always recommended to keep the scheduled dental appointments short and allowing these patients to resume the semi-reclined position and encourage for frequent change in positions.

Fortunately, most of the drugs used in a dental clinic are generally considered safe for both expecting mother and the fetus [1], [2], [6], [7] Almost 43% of our interns were of the opinion that local anaesthesia is safe to be used in pregnant patients in any trimester, whereas 59% of the participants in a previous study conducted among interns had agreed that local anaesthesia has the least risk when used in pregnant females. Nearly 30% of our participants were mindful of the fact that periodontal infection can lead to preterm birth & low birth weight babies. Contrasting results were identified in another study where 59% of interns were aware of the fact that periodontitis causes preterm low birth weight babies [17]. Few clinical trials have recorded that non-surgical periodontal therapy like plaque control instructions, scaling, polishing and root planing under local anaesthesia can reduce the risk of preterm low birth weight babies [13], [19], [20], [21].

Food and Drug Administration (FDA) has classified drugs into five categories of safety for use during pregnancy. Acetaminophen is the safest NSAID and the drug of choice to prescribe for an expecting mother [9], [12]. Only 55 % of our participants knew the safest NSAID among pregnant females. There were varied results in another study with 90% of participants being aware of the safest NSAID [17]. Ibuprofen, when given in first and second trimesters, considered as category B analgesic, but because it has been associated with lower levels of amniotic fluid, premature closure of fetal ductus arteriosus and inhibition of labour when taken during the third trimester, it is a category D drug during this phase [1].

If dental caries is a source of pain because of acute infection in an otherwise healthy pregnant woman, it is the dentist responsibility to provide prompt care irrespective of the patient's phase of pregnancy [1], [2]. Because untreated active infection can cause greater risk than the hazard caused by performing the treatment, also, febrile illness and sepsis can precipitate a miscarriage [12]. Unfortunately, only 23% of interns were aware that acute dentoalveolar infection should be treated immediately. The results were in contrast with the other study were 37% interns were willing to provide immediate treatment for active dental infection for a pregnant patient. With varying emotional phases, fears, and phobia, these pregnant patients delay or

avoid their dental treatment. Anxiety may lead to transient increases in blood pressure, gastrointestinal upset, uterine cramping or hyperventilation. Often, counselling and addressing the cause of the patient's fears help relieve these symptoms. In our study, only 46% of the participants thought that counseling and non- pharmaceutical methods are sufficient to treat anxiety for a pregnant patient in a dental clinic. The limitations of our study are the sample size being small, and we have conducted only in one university who are the representatives of dental interns in Saudi Arabia. We also need to consider regarding the fluency in English language, since participants were not the native speakers.

In summary, we found that a significant number of the participants were not having adequate awareness to treat the pregnant patients. On analyzing the results, it is established that most of the interns (55%) lacked confidence to manage the dental needs of pregnant patients. While 35% expressed that they were somewhat confident to do any dental treatment for a gestating female. Despite the limitations in the study there is a definitive need to improve their knowledge. The confidence level among the interns can be instigated by implementing curriculum to strengthen their experience to face a pregnant patient in dental clinic during their training period, and to have in-depth foundation on the knowledge of oral health needs and treatment options for gestating females, also by encouraging the interns to update their knowledge by attending the CDE programs periodically.

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