

## Dentist's opinion toward treatment of pregnant patients

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مقدمة: هدفت هذه الدراسة لتقييم وعي أطباء الأسنان بمدينة الرياض للخيارات العلاج المتوفرة للمريضة الحامل. طريقة البحث: وزع في مدينة الرياض استبيان ذاتي التعبئة لجمع البيانات المتعلقة بمحاصص أطباء الأسنان المشاركين في المسح وخيارات تقديم الرعاية الصحية للمرأة الحامل بما في ذلك السؤال عن إمكانية عمل إجراءات محددة أو وصف أدوية معينة. النتائج: تم توزيع ٥٠٠ استبيان على أطباء الأسنان بمدينة الرياض، وجمع ٢١٢ استبيان في هذا المسح (نسبة الاستجابة كانت ٤٢,٥%). معظم المشاركين كانوا أطباء أسنان عامين وخبرتهم العملية أقل من ٥ سنوات، وتخرجوا من جامعات محلية ويعملون في القطاع الحكومي. أوضح أكثر من نصف المشاركين إجراءاتهم صورياً شعاعية لأسنان المريضة الحامل التي تشتكي من ألم في أحد أسنانها حتى في حال وجود الشك في التشخيص، بينما أظهر حوالي ٥٥% منهم خيار قلع السن المؤلمة غير القابلة للترميم خلال الحمل. كما أظهرت النتائج أن ثلثي المشاركين لن يقوموا بتعويض رحي مفقودة بتعويض ثابت خلال الحمل. وفيما يتعلق بالتقليل وتسوية الجذور في تراكم القلع والتزف اللثوي، فحوالي ٨٦% من المشاركين فضل عدم إجرائه أثناء الحمل والإكتفاء بتعليمات العناية الفموية واستعمال غسولات الفم. استطلعت آراء المشاركين تجاه وصف خمس مضادات حيوية هي أموكسيسيلين وكلنداميسين وتتراساكيلين وميترونيدازول وسيفالوسبورين، فاختر أكثرهم وصف الأموكسيسيلين (٩٦%). كما استطلعت آراء المشاركين تجاه وصف أربعة أدوية مسكنة للألم هي الباراسيتامول والأيبوبروفين والأسبرين والكوداين، فاختر معظمهم الباراسيتامول (٩٦,٧%). وأخيراً سئل أطباء الأسنان عن اختيارهم لمادة التخدير الموضعي التي يستخدمونها مع المرأة الحامل من بين أربع مواد هي الليدوكين مع أو بدون قابض الأوعية الدموية الأدرينالين وبرولوكين مع أو بدون قابض الأوعية الدموية فيلبريسين، فابدى ٧٥% منهم استعمال الليدوكين بدون المقبض الوديالين مع تجنب البرولوكين مع المقبض الوديالين فيلبريسين. أظهر هذا البحث وجود نقص في معلومات أطباء الأسنان في أساليب تقديم الرعاية الصحية للمريضة الحامل بغض النظر عن صفاتهم وخصائصهم الاجتماعية أو الجغرافية مما يستوجب تكتيف برامج التعليم الطبي المستمر في هذا الموضوع بالإضافة إلى تعزيز تدريس هذا الموضوع عند تغطيته في مرحلة بكالوريوس طب الأسنان.

**OBJECTIVE:** The aim of this study was to assess the awareness of dentists in Riyadh city about treatment alternatives available for pregnant patients. **MATERIAL AND METHODS:** A self-administered questionnaire was distributed among 500 dentists practicing in Riyadh city. The questionnaire included data on dentists socio-demographic and practice characteristics in addition to management choices of the pregnant dental patient such as dental treatment practices and selected therapeutic choices. **RESULTS:** Out of the questionnaires distributed, 212 questionnaires were collected (42.5% response rate). Most of the participants were general practitioners, with less than 5 years clinical experience, who obtained their degree from local institutes and practiced in the government sectors. Over half of the participants stated that they would radiograph a pregnant patient who was suffering from pain from a tooth with doubtful diagnosis or would extract a non-restorable painful tooth. Two-thirds of the participating dentists would not replace a missing molar with a fixed partial denture during pregnancy. The majority of the participants (86%) would give oral hygiene instructions, prescribe a mouthwash and do scaling and/or root planing for a pregnant patient with gingival bleeding and calculus deposits. In respect to antibiotics, the majority of the dentists (96%) would prescribe amoxicillin to a pregnant patient. Of the four analgesic agents surveyed, paracetamol was the most popular analgesic agent (96.7%). On the use of local anesthetics, the majority of the dentists (75%) would use lidocaine without vasoconstrictor and would not use prilocaine with felypressin vasoconstrictor. **CONCLUSION:** The study showed that there was a lack of knowledge about the clinical management of the pregnant dental patients among the surveyed dentists regardless of their socio-demographic and practice characteristics necessitating continuous dental education programs on the dental management of pregnant dental patients.

### INTRODUCTION

Pregnancy results in physiologic changes in almost all organ systems in the body. These physiologic changes influence the dental management of women during pregnancy. Thus, understanding these

normal changes is essential for providing quality dental care for pregnant women.<sup>1</sup>

Some dentists have been reluctant to provide dental care to pregnant patients due to uncertainty of the risks that might be imposed on both the mother and the fetus. This uncertainty may be reflected as an undercare for this vulnerable population.<sup>2</sup>

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A recent study showed that only 54.6% of the surveyed dentists felt they were sufficiently informed and educated about the treatment of pregnant patients.<sup>3</sup> While another study showed that only 58% of the interviewees decided clearly in favor of local anaesthetics.<sup>4</sup> No data is available on the dental care choices during pregnancy in Saudi Arabia.

The aim of this study was to assess the awareness of dentists in Riyadh city about treatment alternatives available for pregnant patients.

## MATERIALS AND METHODS

Five hundred self-administered questionnaires were personally distributed among dentists working in private practices and government clinics/hospitals in Riyadh, Saudi Arabia during the period from September to November 2006. The dentists were approached in their clinics or during continuous education courses. Pretest was conducted including interviews with dentists to ensure that the instrument was comprehensible and valid. Appropriate modifications were made before these questionnaires were distributed.

The questionnaire was designed in both Arabic and English and included data on socio-demographic and practice characteristics in addition to management choices of the pregnant dental patient.

The demographic and practice characteristics included questions on gender, specialty, place of obtaining degree, number of years in clinical practice and type of practice whether in government or private.

Questions on management choices of the pregnant dental patient were close ended with "Yes" or "No" responses and participants were instructed to respond with a question mark (?) if they were uncertain of the answer. These questions covered different aspects of dental

treatment practices for the pregnant patient such as tooth extraction, dental radiographic examination, elective dental treatment (posterior three units fixed partial denture) and periodontal treatment. In addition, selected therapeutic options such as antibiotics, analgesics, and local anesthesia for the pregnant patient were included.

The data were entered into a computer and the Statistical Package for Social Sciences (SPSS version 15) was used to generate the descriptive statistics. The t-test was used to detect differences between various populations considering the socio-demographic data and practice management choices. The significance level was set at <0.05.

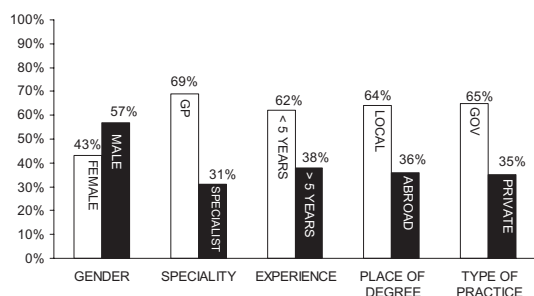
## RESULTS

### Socio-demographic and Practice Characteristics

Of the 500 questionnaires distributed, 212 were returned (42.5% response rate). Fifty-seven percent of the respondents were males and 43% were females. The majority of respondents (69%) were general dental practitioners and only 31% were specialists. Of the participants, 38% had five years or more of clinical experience and 62% had less than five years. About two-thirds of the surveyed sample obtained their degree from Saudi Arabia while 36% obtained it from abroad. Two-thirds of the participants (65%) worked in the government sector and 35% were in private practices (Fig. 1).

### Management Choices

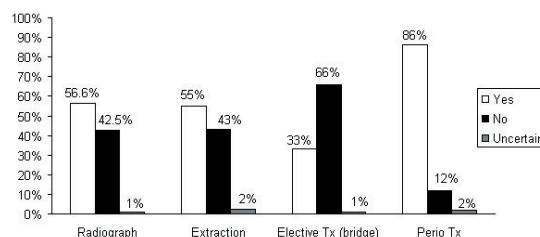
When the participants were asked if they would radiograph a tooth with maximum radiation protection precautions in a pregnant patient, only 56.6% stated that they would expose the patient to x-ray if it was necessary while 42.5% would not



**Fig.1.** Socio-demographic and practice characteristics of the participants.

expose a pregnant patient to any x-ray even if they are uncertain of the diagnosis and only 1% were uncertain about the answer (Fig. 2). Half (53%) of the private dentists avoided dental radiographs for pregnant patients compared to only one-third (37%) of those who worked in the government institution. This difference was statistically significant ( $P=0.0124$ ). Fifty-five percent reported that they would extract a non-restorable painful tooth whereas 43% reported that they would not perform any extraction during pregnancy and would manage the pain by prescriptions or extirpating the pulp of the painful tooth, and only 2% were uncertain about the answer. For elective treatment which was represented in the survey in the form of replacement of a missing molar (non-esthetic area) with a posterior three units fixed partial denture, two-thirds (66%) stated they would delay it until after after delivery and one-third of the dentist would electively treat during pregnancy and only 1% were uncertain whether to treat it or not to treat. There was a statistical difference between the male and female dentists regarding elective treatment during pregnancy as two-thirds (67%) of the group that choose to do elective treatment during pregnancy were males compared to only one-third (34.5%) females who would do it ( $P < 0.0001$ ). Dentists in private clinics (46%) were more willing to perform elective treatment while only 28% of government dentists would carry out this treatment.

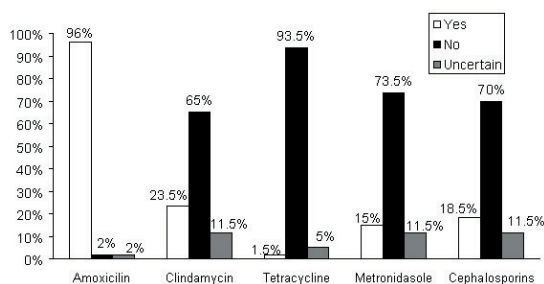
The majority of the participants (86%) stated that they would give oral hygiene instructions, prescribe a mouthwash and do scaling and/or root planing for a pregnant patient with gingival bleeding and calculus deposits while 12% refused the concept of scaling and root planing to a pregnant patient even if the patient showed signs of periodontal disease and 2% were uncertain of the procedures (Fig.2). Socio-demographic and practice characteristics of the participants had no significant effects on their management choices other than the differences mentioned above.



**Fig.2.** Management choices of dentists for pregnant dental patient.

### Antibiotic Choices

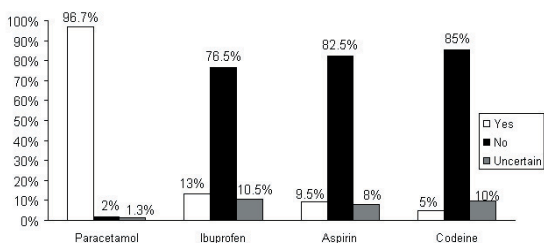
Five popular antibiotic choices were surveyed: amoxicillin, clindamycin, tetracycline, metronidazole and cephalosporines. The majority of the surveyed dentists (96%) would prescribe amoxicillin to a pregnant patient. Sixty-five percent would not prescribe clindamycin to a pregnant patient while 23.5% would prescribe it and 11.5% were uncertain. On the other hand, 93.5% would avoid tetracycline during pregnancy while only 1.5% of them would prescribe it and 5% were uncertain. Only 15% choose metronidazole while 73.5% would not prescribe it and 11.5% were uncertain about it. For cephalosporines, 18.5% would prescribe and 70% of the participants would not prescribe it for pregnant patients and 11.5% were uncertain about it (Fig. 3).



**Fig.3.** Antibiotic choices of dentists for pregnant dental patient.

### Analgesic Choices

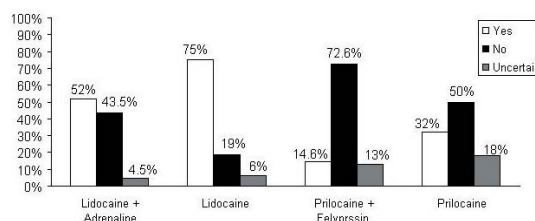
Four popular analgesic agents were surveyed: paracetamol, ibuprofen, aspirin and codeine. Paracetamol was the most popular analgesic agent (96.7%). The other analgesic agents (ibuprofen, aspirin and codeine) were less popular as only 13% would prescribe ibuprofen, 9.5% would prescribe aspirin and only 5% will prescribe codeine for pregnant patients (Fig. 4).



**Fig.4.** Analgesic choices of dentists for pregnant dental patient.

### Local Anesthetic Agent Choices

The choice of four common types of local anesthetic agents during pregnancy was surveyed: lidocaine (xylocaine) with or without adrenaline vasoconstrictor and prilocaine (Citanset) with or without felypressin vasoconstrictor (Octapressin). The majority of the dentists (75%) would use lidocaine without vasoconstrictor and 72.6% would not use prilocaine with felypressin vasoconstrictor. Eighteen percent were uncertain about prilocaine without vasoconstrictor (Fig.5).



**Fig.5.** Local anesthesia choices of dentists for pregnant dental patient

In general, 9% of participating dentists were uncertain about prescribing medications for pregnant patients.

No significant relationship was found between the socio-demographic and practice characteristics of the participants and their therapeutic choices.

## DISCUSSION

This study showed that 42.5% of surveyed dentists would not radiograph a tooth even if it was necessary for definitive diagnose of a pregnant patient complain. A similar European study showed that only 33% of the surveyed dentists would request a radiographic examination when necessary.<sup>4</sup> The concept of avoiding radiography during pregnancy generally applies to procedures in which the embryo or fetus would be in or near the primary beam. For dental radiography, the primary beam is limited to the head and neck region. Furthermore, standard radiation hygiene practices, such as the use of high-speed film, filtration, collimation, and leaded aprons, greatly reduce exposure. A full-mouth radiographic series have been shown to be significantly less than 1 cGy, a dose far lower than uterine exposure from naturally occurring background radiation during the 9 months of pregnancy.<sup>5</sup> The maximum risk attributable to 1 cGy exposure to the fetus has been estimated to be about 0.1%, a quantity thousands of times less than the baseline risks of spontaneous abortion, malformation or

genetic disease.<sup>6, 7</sup> However, it is prudent to avoid or minimize the use of diagnostic radiography during pregnancy, especially during the first trimester, the period of organogenesis.<sup>5, 6</sup>

Private dental practitioners participating in this survey were more conservative in using needed dental radiographic examinations during pregnancy than those who practiced in governmental sectors. This could be due to the possibility that private dentists, being more exposed to patient complaints and malpractice claims than government dentists and thus the private dentists did not want to perform a procedure that might make their patient worry or blame them for any pregnancy complication that could happen.

Although minor outpatient oral and maxillofacial surgical procedures can be done for pregnant patients if some basic guidelines have been followed,<sup>8</sup> approximately half of the dentists in this study would not extract a painful non-restorable tooth during pregnancy.

Elective dental care is best deferred until after parturition.<sup>8</sup> Two thirds of the surveyed dentists (66%) would not do any elective treatment, however, it was found that most of the male dentists (67%) would perform such treatment during pregnancy compared with only 36% of the female who would do it. A similar study showed that 35.5% of their participants postponed treatment to a postnatal time if possible.<sup>3</sup>

Private dentists (46%) were twice more likely to perform elective dental treatment for a pregnant patient when compared to government dentists (28%). This is possibly due to the private dentists concern that rescheduling an elective dental treatment to a postnatal time could result in economic loss to their private practices if their pregnant patients are lost for future follow-up visit after delivery.

Initiating or continuing oral health preventive care program is essential during pregnancy,<sup>1</sup> however, 14% of the participants either would not perform scaling for a pregnant patient with gingival bleeding and calculus deposits or were uncertain about their treatment choice. This overconservative choice is inappropriate and reflects lack of knowledge among this group. Research has shown higher risk of preterm birth and low birth weight in women with periodontal disease<sup>9</sup> and that periodontal therapy may reduce the risk of preterm low birth weight in women with periodontal disease.<sup>10</sup>

Participants were divided into opposing groups regarding their choices of local anesthesia agent and management options as the percentages of participants who decided for or against them were similar. On the other hand, the participants were more homogenous on other surveyed issues as most of the participants choose one of the options and avoided the other options.

More uncertain answers were noticed in therapeutic choices section than in management choices section. Clinicians should always strive to choose the medication with the most reassuring and extensive data available. The United States Food and Drug Administration (FDA) has categorized the potential for drugs to cause birth defects, providing definitive guidelines for prescribing drugs during pregnancy.<sup>11</sup> They are as follows:

Category A—Controlled human studies indicate no apparent risk to the fetus. The possibility of risk to the fetus is remote.

Category B—Animal studies do not indicate fetal risk. Well-controlled human studies have failed to demonstrate a risk.

Category C—Animal studies show an adverse effect on the fetus but there are no controlled studies in humans. The benefits from use of such drugs may be acceptable.

Category D—Evidence of human risk but in certain circumstances, the use of such a drug may be acceptable in pregnant women despite its potential risk.

Category X—Risk of use in pregnant women clearly outweighs possible benefits.

Amoxicillin, clindamycin, metronidazole and cephalosporines are all classified as B category,<sup>1, 11, 12</sup> however, 96% would prescribe amoxicillin and only 19% on average would prescribe clindamycin, metronidazole and cephalosporines. This is most likely due to the lack of knowledge about their safety.

When paracetamol is administered in therapeutic doses, it is generally considered to be the best choice for managing oral-facial pain during pregnancy.<sup>13-15</sup> This may explain why most of the participants (96.7%) chose to prescribe it.

Most local anesthetic agents have not been shown to be teratogenic in humans and are considered relatively safe for use during pregnancy.<sup>12</sup> However, 25% of the surveyed dentists were against the use of local anesthetic agents. Two other studies showed that only 14%<sup>3</sup> and 42%<sup>4</sup> respectively of the participants were against the use of local anesthetic during pregnancy. Epinephrine, a naturally occurring hormone in the human body, is generally considered to have no teratogenic effects when administered with dental anesthetics.<sup>1, 12, 13, 16, 17</sup> However, 48% of the dentists in this study considered it unsafe or they were uncertain about its effects. The avoidance of epinephrine with local anesthesia will result in shorter duration of local anesthetic action which will limit the time available for necessary dental procedures or induce dental pain and psychological stress which is potentially harmful for the pregnant patient.

## CONCLUSION

This survey showed that there is a clear lack of knowledge about appropriate management of the pregnant dental patient among the surveyed dentists regardless of dentists' socio-demographic and practice characteristics necessitating continuous dental education and more emphasis in undergraduate dental curricular on the management of the pregnant dental patient.

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