Original Article

Dental Mangement Of Pregnant Patients: An Obstetrician's Perspective

Ayesha Basit, Maham Naeem, Sadia Mahmood, Umair Ali, Mohamamd Nasir

ABSTRACT:

Objective: The aim of the study was to investigate obstetricians' perspective regarding dental management of pregnant patients.

Study Design and Setting: It was questionnaire based study and was directed towards practicing obstetricians of Karachi.

Methodology: A seven item questionnaire was formulated by focusing on different aspects of the oral healthcare of pregnant patients including need for regular dental visits, dental radiograph safety, awareness about the adverse pregnancy outcomes due to untreated dental infections, safe use of local anesthesia, antimicrobials and analgesics and the safe trimester for dental extractions. A total of 74 responses received were entered and descriptive analysis was done by SPSS version 16.

Results: Out of 74 respondents, n = 47 (63.5%) were aware that untreated dental infection may lead to adverse pregnancy outcome, n = 20 (27%) actually advise regular dental check-ups to their patients; n = 29 (39.2%) respondents were in favor of leaving the decision for dental x-rays to the dentist and n = 14 (18.9%) respondents allowed dental x-rays anytime during pregnancy to their patients. Out of n = 74, n = 21 (28.4%) respondents permitted dental extractions under local anesthesia with adrenaline by taking some precautions. Co-Amoxiclav (Amoxicillin and Clavulanic acid) was considered the safest antimicrobial by n = 45 (60.8%) respondents whereas Acetaminophen as the safest analgesic by n = 66(89.2%) respondents.

Conclusion: This study concluded that there was a lack of knowledge among obstetricians regarding oral health care of the pregnant patients and this study emphasized the need for oral health care awareness among obstetricians.

Keywords: Adverse pregnancy outcome, antimicrobials, analgesics in pregnancy, periodontal disease, X-rays in pregnancy.

INTRODUCTION:

According to Pakistan Economic Survey 2016-17, the crude birth rate of Pakistan in 2017 was estimated to be 25.2 (per 1000 persons),[1] whereas the World Factbook of Central Intelligence Agency (CIA) estimates it to be 21.9 births/1000 population in 2017.[2] Naseem et al and Gary Armitage listed important oral health problems among pregnant patients in their reviews including caries, gingivitis, periodontitis, tooth mobility and pregnancy oral epulis/tumor; along with the importance of modification in dental chair positioning, prescribed drugs and radiographs during different stages of pregnancy.[3, 4]

Pregnancy results in increased secretion of estrogen by 10 fold and that of progesterone by 30 folds, which in turn leads to a number of changes in different systems of the body including oral cavity.[5] The alterations in cardiovascular system, include increased cardiac output, plasma volume and heart rate. Pregnant patients are also at risk of developing hypertension and diabetes.[6] The microorganisms causing periodontal diseases like gingivitis and periodontitis have the tendency to colonize, produce tissue destruction and escape host defenses in areas distant from the oral cavity.[7,8] Adverse pregnancy outcomes include preterm birth, stillbirth, spontaneous abortion, induced abortion, low birth weight, pre-eclampsia etc.[9]

A systematic review by Ide and Papapanou has shown a significant association between maternal periodontal health and adverse pregnancy outcomes like pre-eclampsia, low birth weight and preterm birth.[10]

Oral health has been found to be neglected among pregnant patients even in developed parts of the world.[11] Thomas and Middleton revealed that only 30% of their study participants had a dental visit once during their last pregnancy.[12] Somewhat similar pattern has also been observed in America.[13]

While working in Oral & Maxillofacial Surgery Department, we have experienced that there are various misconceptions among the patients as well as their attending obstetricians regarding the oral health care leading to avoidance of receiving dental treatment by the patients. Suri and Rao[14] have commented in their study that the obstetricians despite being knowledgeable about the prenatal oral health; did not demonstrate it in their practice behaviors. In a questionnaire

Ayesha Basit,
Associate Professor. Department of Oral & Maxillofacial Surgery, Hamdard University Dental Hospital, Karachi.
Email: ayeshabasitpk@gmail.com

Maham Naeem,
Lecturer. Hamdard University Dental Hospital, Karachi.

Sadia Mahmood,
Lecturer, Hamdard University Dental Hospital, Karachi.

Umair Ali,
Lecturer, Hamdard University Dental Hospital, Karachi.

Mohamamd Nasir,
Associate Professor & HOD Periodontology
Karachi Medical and Dental College

Received: 17-10-18
Accepted: 23-01-19

based study by Hashim and Akbar, 73% participants considered radiographs and 60% considered local anesthesia unsafe during pregnancy.[15]

Delay in dental treatment may lead to adverse pregnancy outcomes but these can be easily avoided by an adequate advice to the pregnant patient from the attending obstetrician with consensus from dental professionals. Curtis et al[16] have also emphasized on the importance of a consensus statements regarding prenatal oral health through inter-professional collaboration in order to provide better dental care to pregnant patients. Therefore the purpose of our study was to investigate the obstetricians' knowledge and point of view regarding different aspects of oral healthcare including regular dental visits, dental radiographs, use of local anesthesia, use of antimicrobials/analgesics and dental extractions during pregnancy.

METHODOLOGY:

The questionnaire was directed towards practicing obstetricians. The seven closed ended items addressing various aspects of dental management of pregnant patients included need for regular dental visits, prescribed dental radiographs, prescribed drugs, awareness about the adverse pregnancy outcomes due to untreated dental infections, awareness about the safe use of local anesthesia, antimicrobials and analgesics and the safe trimester for dental extractions. The questionnaire with a consent form was approved by the Ethical Review Board of Hamdard University. The questions were pilot tested and validated from five practicing dentists and obstetricians for clarity and reproducibility. The corrections from obstetrician were incorporated in the final questionnaire. Total 80 hard copies of the questionnaire were distributed by hand among the obstetricians from different hospitals in Karachi. It was also uploaded on Google Forms to get maximum number of responses[17]. In our study; trainees in Obs/gynecology department and consultants who were providing prenatal care regardless of their duration of experience and involvement in teaching were included in this study. Extensive literature search showed similar studies on the prenatal healthcare workers including midwives who were practicing with gynecologists/obstetricians at all levels.[5, 11, 14, 15, 16, 21, 22, 33] Total number of responses were n = 74 out of 104 forms distributed manually and electronically. Data was entered and descriptive analysis was done by SPSS version16.

RESULTS:

The response rate of the study was 71%. In our study, out of 74 respondents, n = 47 (63.5%) were aware of the possibility of adverse pregnancy outcome as a result of dental infections and n = 20 (27%) practically advise regular dental check-ups to their patients (Table 1). Regarding the safest time during pregnancy for dental x-rays, n = 29(39.2%) respondents were in favor of leaving that decision to the dentist followed by n = 14 (18.9%) respondents who would allow dental x-rays anytime during pregnancy (Table 2).When asked for the permission of dental extractions under local anesthesia with adrenaline during pregnancy, n = 30 (40%) of the participants were not sure, followed by n = 21 (28.4%) of the respondents who would allow this procedure with some precautions (Table 3).

Amoxicillin/clavulanic acid was considered as the safest antimicrobial by n = 45 (60.8%) respondents (Figure 1) and Acetaminophen as the safest analgesic by n = 66 (89.2%) respondents (Figure 2).

DISCUSSION:

Our study was focused on the knowledge and behavior of obstetricians towards their patients' oral health. Relationship of poor oral health and adverse pregnancy outcomes including pre-eclampsia, low birth weight and preterm birth have been vastly researched worldwide but limited researches were found in our local literature.

Han[18] conducted a study based review on this subject. The epidemiological studies in his review showed dual predictors namely periodontal disease and presence of microorganisms including Lactobacilli and Actinomyces species in the saliva for the adverse pregnancy outcomes. His survey of mechanistic studies showed that adverse pregnancy outcomes can be the result of intrauterine infection but the source of this infection could be oral bacteria namely Fusobacterium Nucleatum instead of vaginal microflora.

Harjunmaa et al conducted the study on 1391 pregnant patients and found that patients having periapical infection had significant short mean pregnancy duration, infants with low mean birth weight, neonatal length and neonatal head circumference as compared to the infants of mothers free of periapical infection.[19]

The risk of adverse pregnancy outcomes due to untreated dental infection puts heavy responsibility over the obstetricians/prenatal health care providers. They have to ensure that the pregnant female should have disease free oral cavity during pregnancy.

In our study, out of n = 74 respondents, n = 47 (63.5%) were aware of the possibility of adverse pregnancy outcome due to compromised oral health and only n = 20 (27%) practically advised regular dental check-ups to their patients. Morgan et al[20] revealed in an obstetrician directed questionnaire based study that although 84% of their study participants acknowledged the relationship between the periodontal disease and adverse pregnancy outcome,73% of them had never inquired their patients about their routine dental checkup during last 12 months and 38% participants did not advise their patients for routine dental checkup during pregnancy. Similarly Patil and Thakur in their questionnaire based survey commented that gynecologists' inability to appreciate the impact of poor oral health on pregnancy outcome is because of lack of knowledge (38%) and time (28%) devoted for this purpose.[21]

Decision regarding dental x-rays during pregnancy is a complicated issue and the obstetrician as well as patient should be educated in this context. There are mainly two factors for avoidance of dental treatment during pregnancy namely patient's fear of the dental treatment and obstetrician's concerns regarding congenital defects in newborns developing from x-ray exposure. In our study, when inquired about the safest time for dental x-rays during pregnancy; n = 29 (39.2%) respondents were in favor of leaving that decision to the dentist and n = 14 (18.9%) respondents permitted their patients for dental x-rays anytime during pregnancy. In a questionnaire-based survey by Strafford et al[22]regarding the awareness of dental health during pregnancy among patients, dentists and obstetricians, 92% of the obstetrician group agreed upon the provision of dental x-rays throughout pregnancy with proper shielding and collimation.

According to National Commission for Radiation Protection (NCRP); the recommended cumulative radiation exposure to fetus is not to exceed the limit of 0.2Gy to prevent congenital defects during pregnancy.[23] Abbott[24] commented that 32nd to 37th day (4-5 weeks) of gestation is related to the organogenesis and is the most sensitive period for radiation damage to fetus. A significant radiation exposure for fetal damage is considered in two ways. First the developing fetus should be in the path of radiation and second a radiation dose would exceed 10 μ Sv. The fact that an intraoral periapical radiograph has an effective dose of 4 μ Sv and a panoramic film has 7 μ Sv; therefore dental x-rays should be allowed if indicated and with proper precautions like shielding and collimation to avoid legal issues.[13]

Dental radiographs with proper shielding and collimation have been considered safe during pregnancy by the Committee of American College of Obstetricians and Gynecologists 2013[13] and the evidence based practice guidelines by California Dental Association Foundation and supported by CDA.[25]

In our study while inquiry about the permission to carry out dental extractions under local anesthesia with adrenaline during pregnancy, n = 30 (40%) of our participants were not sure and n = 21 (28.4%) of the respondents permitted it with some precautions. Various factors should be considered when a pregnant patient is advised for dental extraction including the type/dose of local anesthetic and vasoconstrictor agents. In addition, the stage of pregnancy should also be considered. Lidocaine lies under category B of pregnancy risk which means it poses no danger on humans.[26] It is recommended that the dose of lidocaine with adrenaline should be kept below 500mg.[27]

Ample literature recommended dental extractions as a safe procedure with proper positioning in 2nd and 3rd trimester of pregnancy, as untreated infected teeth may lead to more serious complications.[3, 13]

In our study, when participants were asked about the safely prescribed medications during pregnancy for dental treatment; Amoxicillin/clavulanic acid was considered as the safest antimicrobial drug by n = 45 (60.8%) respondents and acetaminophen as the safest analgesic by n = 66 (89.2%) respondents.

Cyclooxygenase is a dilator for ductus arteriosus and pulmonary resistant vessels. It is inhibited by NSAIDs which result in premature closure along with reduced perfusion of fetal kidneys.[28] This is the reasons why Ibuprofen and Naproxen are avoided during 2nd and 3rd trimesters of pregnancy.

Although acetaminophen is considered safe during pregnancy by FDA.[29] Toda K[30] in his review article discussed the rare possible complications of using acetaminophen during pregnancy like autism spectrum disorders, neuro-developmental problems and lower performance intelligence quotient. It was also emphasized in his study that acetaminophen should be used with caution and minimum possible dose and duration as it is the safest analgesic available at the moment during pregnancy.

It has been recommended by multiple resources that amoxicillin plus clavulanic acid, cephalosporin and clindamycin may be used safely during pregnancy along with the metronidazole if required.[25,31, 32]

George et al mentioned that the obstetricians should be aware with of the importance of oral health screening but were unable to perform this on their own due to lack of training and also because they prioritized other health issues over their patients' oral health.[11] Jackson et al[33] while conducting a prenatal oral health program (pOHP) involving faculty members, residents and third year medical students, highlighted the importance of collaborative approach for providing prenatal healthcare for better management of pregnant patients in terms of their oral health.

Despite of using electronic means for distribution of questionnaires, the number of responses we received was less than our expectation; which was the limitation of our study. It was recommended that there is a dire need for oral health awareness of the pregnant patients among entire workforce of prenatal care providers.

CONCLUSION:

This study concluded that there was a lack of knowledge among obstetricians regarding oral health of the pregnant patients.

REFERENCES:

1. Economic Advisor's wing. Population, labor force and employment. Pakistan economic survey 2016-17. Finance Division. Government of Pakistan, Islamabad; 2017.462 p. http://www.finance.gov.pk/survey/chapters_17/pakistan_es_2016_17_pdf.pdf

2. The World Factbook 2016-17. Washington, DC: Central Intelligence Agency, 2016. https://www.cia. gov/library/publications/the-world-factbook/index.htm
3. Naseem M, Khurshid Z, Khan HA, Niazi F, Zohaib S, Zafar MS. Oral health challenges in pregnant women: Recommendations for dental care professionals. The Saudi Journal for Dental Research. 2016;7(2):138-46.
4. Armitage GC. Bi-directional relationship between pregnancy and periodontal disease. Periodontology 2000. 2013;61(1):160-76.
5. Boutigny H, de Moegen ML, Egea L, Badran Z, Boschin F, Delcourt-Debruyne E, Soueidan A. Oral Infections and Pregnancy: Knowledge of Gynecologists/Obstetricians, Midwives and Dentists. Oral health & preventive dentistry. 2016;14(1):41-7.
6. Giglio JA, Lanni SM, Laskin DM, Giglio NW. Oral health care for the pregnant patient. Journal of the Canadian Dental Association. 2009;75(1).
7. Cetin I, Pileri P, Villa A, Calabrese S, Ottolenghi L, Abati S. Pathogenic mechanisms linking periodontal diseases with adverse pregnancy outcomes. Reproductive sciences. 2012;19(6):633-41.
8. Kandan PM, Menaga V, Kumar RR. Oral health in pregnancy (guidelines to gynaecologists, general physicians & oral health care providers). JPMA-Journal of the Pakistan Medical Association. 2011;61(10):1009.
9. Nature.com. Pregnancy Outcome [Internet]. Nature Research. Springer Nature 2019 Springer nature Publishing AG. Available from: https://www.nature.com/subjects/pregnancy-outcome.
10. Ide M, Papapanou PN. Epidemiology of association between maternal periodontal disease and adverse pregnancy outcomes–systematic review. Journal of periodontology. 2013;84:S181-94.
11. George A, Shamim S, Johnson M, Dahlen H, Ajwani S, Bhole S, Yeo AE. How do dental and prenatal care practitioners perceive dental care during pregnancy? Current evidence and implications. Birth. 2012;39(3):238-47.
12. Thomas NJ, Middleton PF, Crowther CA. Oral and dental health care practices in pregnant women in Australia: a postnatal survey. BMC pregnancy and childbirth. 2008;8(1):13.
13. American College of Obstetricians and Gynecologists. Committee Opinion No. 569: oral health care during pregnancy and through the lifespan. Obstet Gynecol. 2013;122(2pt1):417-22.
14. Suri V, Rao NC, Aggarwal N. A study of obstetricians' knowledge, attitudes and practices in oral health and pregnancy. Education for Health. 2014;27(1):51.
15. Hashim R, Akbar M. Gynecologists' knowledge and attitudes regarding oral health and periodontal disease leading to adverse pregnancy outcomes. Journal of International Society of Preventive & Community Dentistry. 2014;4(Suppl 3):S166.
16. Curtis M, Silk HJ, Savageau JA. Prenatal oral health education in US dental schools and obstetrics and gynecology residencies. Journal of Dental Education. 2013;77(11):1461-8.
17. Google Forms: https://docs.google.com/ forms/d/1L8H36SusYzrxZpa2TPkt2EEU2D_jmJ3BRDJTtr-6s-8/edit#response=ACYDBNic8fcNeaNARgAG7V6bVBpMdDNa2DQZofYwhnY8Ynd5ZMDa5rsKTPXI96I).
18. Han YW. Oral health and adverse pregnancy outcomes–what's next?. Journal of dental research. 2011;90(3):289-93.
19. Harjunmaa U, Järnstedt J, Alho L, Dewey KG, Cheung YB, Deitchler M, Ashorn U, Maleta K, Klein NJ, Ashorn P. Association between maternal dental periapical infections and pregnancy outcomes: results from a cross-sectional study in Malawi. Tropical Medicine & International Health. 2015;20(11):1549-58.
20. Morgan MA, Crall J, Goldenberg RL, Schulkin J. Oral health during pregnancy. The Journal of Maternal-Fetal & Neonatal Medicine. 2009;22(9):733-9.
21. Patil S, Thakur R, Madhu K, Paul ST, Gadicherla P. Oral health coalition: knowledge, attitude, practice behaviours among gynaecologists and dental practitioners. Journal of international oral health: JIOH. 2013;5(1):8.
22. Strafford KE, Shellhaas C, Hade EM. Provider and patient perceptions about dental care during pregnancy. The Journal of Maternal-Fetal & Neonatal Medicine. 2008;21(1):63-71.
23. Hemalatha VT, Manigandan T, Sarumathi T, AarthiNisha V, Amudhan A. Dental considerations in pregnancy-a critical review on the oral care. Journal of clinical and diagnostic research: JCDR. 2013;7(5):948.
24. Abbott P. Are dental radiographs safe?. Australian Dental Journal. 2000;45(3):208-13.
25. California DA. Oral health during pregnancy and early childhood: evidence-based guidelines for health professionals. Journal of the California Dental Association. 2010;38(6):391.
26. Lee JM, Shin TJ. Use of local anesthetics for dental treatment during pregnancy; safety for parturient. Journal of dental anesthesia and pain medicine. 2017;17(2):81-90.
27. Cengiz SB. The pregnant patient: Considerations for dental management and drug use. Quintessence International. 2007;38(3).
28. Malhotra S, Khanna S. Safety of analgesics in pregnancy. Int J ObstetGynaecol Res. 2016;3(1):208-12.
29. Antony V, Khan R. Dentistry for the pregnant patient. IOSR-JDMS. 2014;13:83-90.
30. Toda K. Is acetaminophen safe in pregnancy? Scandinavian journal of pain. 2017;17(1):445-6.
31. Oral Health Care during Pregnancy Expert Workgroup. 2012. Oral Health Care during Pregnancy: A National Consensus Statement. Washington, DC: National Maternal and Child Oral Health Resource Center.
32. Ouanounou A, Haas DA. Drug therapy during pregnancy: implications for dental practice. British dental journal. 2016;220(8):413.
33. Jackson JT, Quinonez RB, Kerns AK, Chuang A, Eidson RS, Boggess KA, Weintraub JA. Implementing a prenatal oral health program through interprofessional collaboration. Journal of dental education. 2015;79(3):241-8.