

Awareness and knowledge regarding maternal periodontal status and associated pregnancy outcomes among the gynecologists of Hubli-Dharwad

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Access this article online
Website: www.jisponline.com
DOI: 10.4103/jisp.jisp_263_19
Quick Response Code: 

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Submitted: 02-May-2019
Revised: 28-Oct-2019
Accepted: 02-Dec-2019
Published: 02-Jun-2020

Abstract:

Introduction: Periodontitis is an inflammatory disease of gingiva and its supporting structures and is known to cause systemic infection which has adverse effect on pregnancy outcomes, such as preterm birth, preeclampsia, or miscarriage, which have been linked to maternal periodontitis. **Aim:** Thus, this study aimed to evaluate the knowledge and awareness regarding the association of periodontitis and adverse pregnancy outcomes among the gynecologists practicing in Hubli-Dharwad city. **Materials and Methods:** The study involved a survey for 50 practicing gynecologists in Hubli-Dharwad city, a pretested close-ended questionnaire was distributed comprising 10 questions on oral health for expectant mothers, and thus, their knowledge and awareness levels were assessed. **Results:** The results showed that majority of gynecologists agreed importance of maintaining good general health during pregnancy and supported that providing dental treatment during pregnancy improved the pregnancy outcomes. **Conclusion:** However, practical implementation and referring patients to dentists were less. The gynecologists were aware of the facts but failed to execute at the clinical level. Thus, this bilateral interdisciplinary protocol can thus reduce the incidence of maternal and neonatal complications.

Key words:

Gynecologists, maternal periodontitis, preeclampsia, pregnancy, preterm low birth weight

INTRODUCTION

Periodontitis is a chronic inflammatory disease of the gingiva and its supporting structures and is known to cause systemic infection affecting the general health causing various systemic diseases, such as diabetes mellitus, hypertension, cardiovascular complications, and chronic renal failure.^[1] Periodontal infection has also contributed to adverse pregnancy outcomes such as premature delivery, low birth weight (LBW) babies, preeclampsia, miscarriage, or early pregnancy loss.^[2] The American Academy of Periodontology recommended that periodontal examination and appropriate treatment should be given for pregnant women and women planning for pregnancy.^[3,4] Moreover, meta-analysis of randomized controlled trials suggested that periodontal treatment during pregnancy reduces the risk of preterm LBW babies.^[5] However, the studies by Kim and Amar and Xiong *et al.*^[5,6] linking maternal periodontal disease and adverse pregnancy outcomes have yielded conflicting results. Thus, the aim of the present study was to evaluate the knowledge and awareness regarding the association of periodontitis and adverse pregnancy outcomes among the gynecologists practicing in Hubli-Dharwad city.

MATERIALS AND METHODS

This cross-sectional survey was conducted among the practicing gynecologists of Hubli-Dharwad city so as to evaluate their knowledge and awareness about periodontal health during pregnancy. This study comprised 50 gynecologists having their own hospitals with more than 5 years of practice, and the study was performed from September 2018 to December 2018. Initially, a pilot study was done on 10% of the sample size so as to check the validity and feasibility of the questionnaire. The participants of the pilot study were not considered in the main study so as to prevent the bias.

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How to cite this article: Sinha S, Bhat PR, Govekar VV, Trasad VA, Acharya AB. Awareness and knowledge regarding maternal periodontal status and associated pregnancy outcomes among the gynecologists of Hubli-Dharwad. *J Indian Soc Periodontol* 2020;24:375-8.

A pretested close-ended questionnaire with responses recorded as yes or no was distributed to all the study subjects. However, among the participants who were enrolled in this study, no questions were left unanswered which meant that all the gynecologists were aware of the questions asked. The reliability of the questionnaire was checked with the pretested questionnaire, and the sample size was determined by convenience sampling method. The questions were designed to assess the knowledge, awareness, and attitude toward oral care in pregnant patients among the gynecologists [Questionnaire 1].

Statistical analysis

The results were subjected to statistical analysis, and a percentage-wise distribution of the responses to various questions was used.

RESULTS

The present survey gives information about the knowledge and awareness about maternal periodontal status and its associated adverse pregnancy outcomes among the gynecologists of Hubli-Dharwad. The mean age of the participants was 39.16 ± 9.8 years.

Of the 50 gynecologists who participated in this study, 48 (96%) of them agreed that dental check-up is necessary for pregnant patients and 35 (70%) of them considered a dental checkup necessary as a part of routine pregnancy checkup. 47 (96%) of them believed that treating gum problems was safe during pregnancy of which 24 (48%) and 23 (46%) felt that first and second trimester were safe to treat dental diseases, respectively. 41 (82%) of them thought that treating gum disease during pregnancy would improve the pregnancy outcomes and 37 (74%) of them believed that gum disease is one of the risk factors for preterm LBW deliveries, preeclampsia, or failed pregnancy.

38 (76%) of them were aware of the association between gum disease and adverse pregnancy outcomes and 46 gynecologists (92%) believed that maintaining a good oral health during pregnancy would improve the fetal health, but practically, only 14 (28%) of them referred their pregnant patients to a dentist for a dental checkup as a part of antenatal care [Table 1].

DISCUSSION

Dental awareness among the general health professionals, particularly the gynecologists, may not be sufficient, and

Table 1: Percentage-wise distribution of study participants based on their responses to the questions

Questions	No	Yes
1	4	96
2	34	66
3	30	70
4	0	48 (1 st), 46 (2 nd), and 6 (3 rd)
5	6	94
6	18	82
7	26	74
8	8	92
9	24	76
10	72	28

the awareness pertaining to the association of maternal periodontitis and adverse pregnancy outcomes is limited. In the present study, 48 (96%) gynecologists had adequate knowledge and were aware about the effects of oral health on pregnancy outcomes, and 46 gynecologists (92%) believed that maintaining a good oral health during pregnancy would improve the fetal health. Moreover, 41 (82%) were positive pertaining to the treatment of gum diseases during pregnancy so as to improve the pregnancy outcomes, thus suggesting that the gynecologists are aware of the association between oral health and its effects on adverse pregnancy outcomes, which is in agreement with the results of the studies conducted by Xiong *et al.*,^[6] Suri *et al.*,^[7] Tarannum *et al.*,^[4] and Govindasamy *et al.*^[2]

During pregnancy, the lipopolysaccharides and bacteria from the subgingival plaque and pro-inflammatory cytokines from the inflamed periodontal tissues can enter the bloodstream, reach the maternal-fetal interface, trigger or worsen the maternal inflammatory response, and increase the plasma levels of prostaglandins and cytokines, thus playing a nonspecific role in various adverse pregnancy outcomes.^[6] Hill^[8] and Von Minckwitz *et al.*^[9] observed that *Fusobacterium nucleatum* was the most frequently cultured oral species from the amniotic fluid in women with preterm labor and the bacterial products would activate the prostaglandin synthesis, increased levels of interleukin (IL)-6 and IL-8, thus inducing hyperirritability of uterine smooth muscles, further enhancing uterine contractions, cervical ripening, cervical thinning, cervical dilation, and onset of preterm labor.^[10] It was also reported that mothers of LBW babies had more areas of gingival bleeding and calculus accumulation.^[11] Moreover, the hormonal changes in pregnancy have been associated with increased susceptibilities to gingivitis, gingival bleeding, and pregnancy tumors.^[4,12]

In the present study, of the 50 gynecologists, 35 (70%) of them considered a dental checkup necessary as a part of routine pregnancy checkup of which 24 (48%) believed that it was safe to provide dental treatment in the first trimester; 23 (46%) in the second trimester; and 3 (6%) in the third trimester; however, practically, only 14 (28%) of them referred their pregnant patients to a dentist for a dental checkup as a part of antenatal care. This suggests that although the gynecologists are aware of the association between gum diseases and adverse pregnancy outcomes, the practical implementation is less. This could also be due to patient's attitude and their preferences to general health, especially during pregnancy over oral health along with the barriers and myths about the effect of dental care on pregnancy.^[13] However, this attitude can be changed if the healthcare professionals are aware about the association of oral health to general health. Gynecologists are the first health workers to get in touch with pregnant patients, and their awareness about the association between periodontal disease and pregnancy outcomes is vital for the prevention of adverse pregnancy outcomes. Moreover, pregnant women are more likely to seek dental care if recommended by their gynecologists.^[13] It is first the gynecologists than the dentists who recognize the common gingival problems during pregnancy, thus indicating a strong need for interdisciplinary communication and coordination to assure the provision of adequate health care to pregnant females.^[4] Studies have reported that most of the physicians and

obstetricians had no training on oral examinations during their medical and specialty courses and they do feel insecure in their knowledge about oral conditions.^[11,14-17] Few obstetricians and gynecologists never had time to perform a dental examination because of their too busy practice – the attitude which may result in oral health being a minor aspect of care.^[11,13,15,17,18] Thus, the need of the hour is to conduct seminars and interactive workshops for medical practitioners by dental researchers to create an awareness about the association between periodontal disease and adverse pregnancy outcomes and implement it in their practice. Moreover, publishing articles in magazines, distributing pamphlet, or writing reports related to these topics in medical journals may also prove to be useful.^[18]

CONCLUSION

This survey study showed that gynecologists were aware of the periodontal issues during pregnancy but failed to refer the cases to the dentist. The maintenance of oral health is important for well-being of the pregnant patient and the fetus. Thus, seminars and interactive workshops should be conducted for the gynecologists so as to create awareness and make them realize the importance of referring pregnant patients to the dentist.

However, the limitation of this study is the small sample size obtained considering the total number of practicing gynecologists in Hubli-Dharwad city. A similar study can be performed in large metropolitan cities to generalize the entire population of gynecologists to validate the results of this study.

Acknowledgement

We wish to acknowledge Dr. Kriti Nikhil for statistical analysis and interpretation of the data.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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QUESTIONNAIRE 1

[YES/NO]

1. Do you think a dental checkup is necessary for pregnant patients?
[]
2. Do your pregnant patients complain about gum problems such as bleeding gums, swollen gums, and pus discharge from gums or issues such as bad breath?
[]
3. Do you consider a dental checkup necessary as a part of routine pregnancy checkup?
[]
4. If you consider a routine dental checkup to your patients, in which trimester of pregnancy would you advise the same?
[1st/2nd/3rd]
5. Do you think treating the teeth and gum problems is safe during pregnancy?
[]
6. Do you think treating gum disease during pregnancy would improve the pregnancy outcomes?
[]
7. Do you think gum disease is one of the risk factor for premature delivery or preterm low birth-weight delivery, preeclampsia, or a failed pregnancy?
[]
8. Do you think that maintaining a good oral health during pregnancy would improve the fetal health?
[]
9. Are you aware about the association between gum diseases and adverse pregnancy outcomes?
[]
10. Do you refer your pregnant patients to a dentist for a dental checkup as a part of antenatal care?
[]