



Awareness among Gynecologists about Relationship between Periodontitis and Pregnancy– A Cross Sectional Survey

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ABSTRACT: Periodontal diseases are risk factors for unpropitious pregnancy outcomes. So, oral health should be evaluated during pregnancy. Lack of awareness and attitudes concerning oral health can cause neonatal mortality and preterm low birth weight among infants. Finally, what needs to be understood is the key role of medical professionals in this aspect, to deliver appropriate and standard prenatal care to pregnant women. Hence, it is essential to evaluate the knowledge of medical health professionals about periodontitis and its association with unpropitious pregnancy outcomes.

Objective: To assess the knowledge of periodontal disease and pregnancy outcomes among the gynecologists practicing in Punjab, India.

Materials and Methods: A cross-sectional study is conducted in Punjab among 536 randomly chosen gynaecologists using a questionnaire. The questionnaire is distributed to the gynecologists by e-mails, google forms, and personal interactions and is requested to anonymously complete the questionnaire.

Result & Conclusion: In the present survey on gynecologists, it was concluded that gynecologists were aware of the facts and advised but not insisted patients on getting dental treatment. Therefore seminars & interactive workshops might help in creating awareness about the importance of oral health during pregnancy among gynecologists. Bilateral interdisciplinary protocol can thereby reduce the incidence of maternal and neonatal complications. Conjunctive treatment by gynecologists and dentists aid to improve the maternal oral health and reduce the postnatal complications

Key Words: periodontitis, pregnancy, gynaecologists

I. INTRODUCTION

Oral cavity reflects overall health status and also acts as a portal for malady to the rest of the body. Oral health is often compromised in pregnant women when compared to non-pregnant peers. It involves multiple substantial hormonal changes that have an epoch-making impact at the time of pregnancy.¹ Oral health problems with

pregnancy primarily includes gingivitis, pregnancy granuloma, and periodontitis.² Lack of knowledge, the existence of misbelief and negative attitude towards dental care during pregnancy exaggerates the problem. Pregnant women visit gynecologists for regular antenatal checkups, and they are the most frequently encountered healthcare workers. Hence, they can play an important role in improving the oral health of pregnant women by recommending additional care.

However, gynecologists receive limited training in oral health that may not be sufficient to understand the relationship between poor periodontal health and adverse pregnancy outcomes.

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.³ Periodontal infection has also contributed to adverse pregnancy outcomes such as premature delivery, low birth weight (LBW) babies, preeclampsia, miscarriage, or early pregnancy loss.⁴ The American Academy of Periodontology recommended that periodontal examination and appropriate treatment should be given for pregnant women and women planning for pregnancy.⁵ Pregnant women should maintain proper oral hygiene because they are more prone to gingivitis and periodontitis which in turn affects the child's health. Gynecologists treat the women with hormonal problems and pregnancy; it is their responsibility to educate them about the oral hygiene, which is very important for the maintenance of overall health. Medical and dental professionals should work synchronously for overall benefit of the patient.

Hence the aim of our present study is to evaluate the knowledge and awareness regarding the association between periodontal disease and pregnancy outcomes among gynecologists and referral pattern to Periodontists in Punjab, India.



II. MATERIALS & METHODS

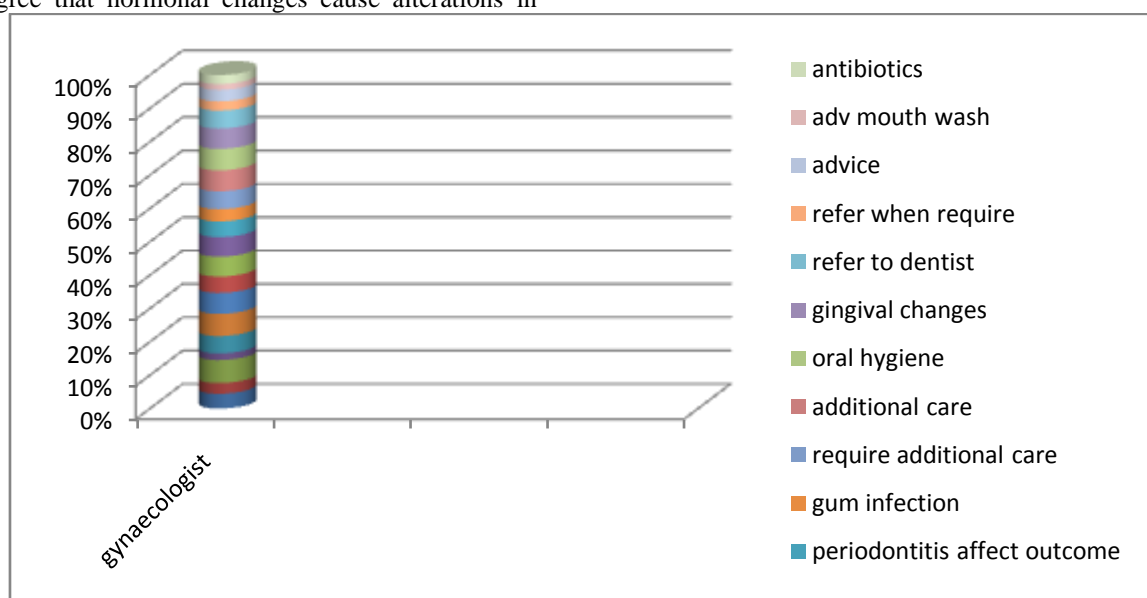
A cross sectional survey was conducted among practicing Gynecologists in Punjab, India. The inclusion criterion for the study was gynecologists who were willing to participate in the study. After a brief introduction about the study, a total of 536 gynecologists were willing to participate in the study. After obtaining informed consent from all participants, the questionnaire was individually distributed and answers were collected in the presence of the investigator personally / through google forms. The questionnaire was prepared by taking questions from the previously conducted surveys. The questionnaire was validated with 10 gynecologists before conducting the survey. It consists of 24 questions to evaluate the knowledge and awareness among gynecologists about maternal oral health and their referral pattern to periodontist.

III. RESULTS:

In this cross sectional survey 536 gynecologists participated and completed the questionnaire. Questionnaire contains 24 questions to evaluate the gynecologist's attitude, awareness about the maternal oral health and referral pattern. Out of 536 participants 58% were aware of the different branches in dentistry and they knew about Periodontal diseases. 42% participants have never studied/worked or presented on the relationship between pregnancy & periodontal disease. 90% agreed with the fact that periodontal disease occur at a higher rate in pregnant women. 26% inform their patients about relationship between pregnancy & periodontal disease. 68% of the participants agree that hormonal changes cause alterations in

gingival tissue. 87% told that pregnant women complain of oral health problems. 82% of the practitioners were aware that pregnant women are more susceptible to bleeding gums. 64% informed that pregnant women complain of teeth mobility more often than other individuals during gestation period & 78% reported that pregnant women often complain of swelling in their gums. 77% agree that dental treatment can be performed during pregnancy and the most preferred time is 2nd trimester. 61% agree with the fact that periodontal disease can affect the outcome of delivery & 48% of the participants were aware that gum infections during pregnancy result in the 'Pre-term low birth weight deliveries'.

70% of the participants were not aware with the fact that gum infections during pregnancy result in Pre-eclampsia. 82% were aware that pregnant women require additional periodontal care. 84% insists on maintaining proper oral hygiene during pregnancy. 80% agree that observed gingival changes need treatment and if they find any case with gingival changes all of them refer it to dentist. 70% refer their patients to dentist in 2nd trimester. 36% of the participants refer pregnant woman with gingival changes to dentist as and when required. 45% of the participants advice but don't insist pregnant/planning to be pregnant woman for oral health check-up. 23% advice pregnant women to use mouth wash and antiseptic gel for bleeding gums. 35% prescribed mouthwash & antiseptic gel, antibiotics & analgesics, vitamin supplements to their patients, which indicated that they were attentive towards patient's oral health.





IV. DISCUSSION

Periodontitis, a chronic and subclinical disease, is also suspected for providing an inflammatory component in the fetal environment. During pregnancy, the incidence of gingivitis and periodontitis is increased and many pregnant women suffer from bleeding and boggy gums. An increased hormone levels during pregnancy, coupled with lack of oral hygiene, account for most of the gingival changes. Fifty to seventy percent (50%–70%) of all pregnant women develop gingivitis; this condition is called “pregnancy gingivitis” and mostly due to the change in the level of hormones.¹¹

Min Wu et al suggested that sex hormone (progesterone and estradiol) increase during pregnancy might have an effect on inflammatory status of gingiva, independent of IL-1 and TNF- in GCF.¹⁶ Gynecologists are the primary health care providers for women during pregnancy and have the opportunity to assess the oral health status. They can refer the pregnant women to the periodontist in case of any gingival and periodontal changes or at the initial stage to avoid post-natal complications. The results of the present study demonstrate that all the gynecologists were well aware that pregnant women can undergo periodontal therapy during II trimester.

According to Cohen et al., only 85.8% of Gynecologists are aware of knowledge about periodontitis.¹⁴ Most of the participants (45.5%) gave gingival bleeding are the clinical signs of periodontal disease in this study.¹⁷ Tarannum et al. stated in their study 50% of Gynecologists are aware of periodontal clinical signs during pregnancy.⁸ Cohen et al. showed 87.4% of them were aware of clinical signs associated with periodontal disease in the general population and pregnant women such as gingival bleeding and gingival overgrowth.¹⁷ Interestingly, tooth loss, caries, and alveolar bone destruction were also identified by Gynecologists as clinical signs associated with periodontal disease. This indicates participants are not aware of the pathogenesis of periodontal disease.

In the present study, 68% gynecologists had adequate knowledge and were aware about the effects of oral health on pregnancy outcomes, and 56% believed that maintaining a good oral health during pregnancy would improve the fetal health. 82% were positive concerning to the treatment of gum diseases during pregnancy so as to improve the pregnancy outcomes, thus advocating that the gynecologists are aware of the association between oral health and its effects on adverse pregnancy outcomes, which is in accordance with the results

of the studies conducted by Xiong et al.,⁶ Suri et al.,⁷ Tarannum et al.,⁸ and Govindasamy et al.⁴ & Shiphalika et al.⁹

In the present study, 58% gynecologists opinioned periodontal disease cause preterm birth in pregnancy and interestingly 46% agreed low birth weight is also one of the risk factors influencing periodontal disease in pregnancy. Rocha et al. Brazilian Federation of Gynecology and Obstetrics showed 61% of them are aware of the influence of periodontal diseases on pregnancy causes preterm birth and low birth newborn.¹⁸ A study conducted by Shenoy et al. concluded that gynecologists’ knowledge was high regarding the oral manifestations of periodontal disease but was low regarding periodontal disease as a risk factor in Preterm low birth weight.¹⁹

Adverse pregnancy outcomes present a major health concern to the health professionals in developed and developing countries regardless of the high level of public awareness and improvement in prenatal care.¹⁰ Preterm delivery and low birth weight constitute the common causes for neonatal morbidity and mortality.

Preterm delivery is associated with risk factors such as smoking, alcohol consumption, race, parity, low maternal weight, older and younger maternal age, short cervical length, stress, low socioeconomic status, poor nutritional status of the mother, genitourinary infections, and other generalized systemic infections. These infections trigger the release of proinflammatory mediators such as interleukin 1(IL-1), tumor necrosis factor alpha (TNF α) and prostaglandin E2 (PGE2), which initiate the preterm labor and low birth weight infant.¹¹

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

Hill¹² and Von Minckwitz et al.¹³ 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.¹⁴ It was also reported that mothers of LBW babies had



more areas of gingival bleeding and calculus accumulation.¹⁵ Moreover, the hormonal changes in pregnancy have been associated with increased susceptibilities to gingivitis, gingival bleeding, and pregnancy tumors.⁸

Another study conducted by Satyanarayana et al.²⁰ showed knowledge of periodontitis is seen more in experienced practitioners with a hospital practice, which concluded clinical behavior regarding oral and periodontal health did not correlate with such knowledge; therefore, specific educational programs should be developed to share knowledge between dentists and gynecologists to develop teamwork. This result was consistent with those reported in other studies.

This study showed 90% gynecologists' opinioned dental treatment can be carried out in pregnancy. All the participants preferred to refer to the dental clinic when they when they are aware of the gingival changes in the pregnant women, hence these results may indicate a strong need for interdisciplinary.

Communication and coordination to declare the provision of sufficient health care to pregnant females. 76% of them considered to give information about their oral health during the consultation if the patient is considered at risk. 42% of the participants advised but didn't insist in this study. Cohen et al.¹⁷ found that in his study 97.4% of them showed consideration of dental treatment during pregnancy. 55.8% when they are at risk. 66% of them refer the patient for dental check. Rocha et al.¹⁸ found that in Brazil 58% of them systematically refer the patients to dental care.

According to Strafford et al.²¹ in his study the 64% of obstetricians reporting that dental care was important to routine prenatal care, only 49% performed oral health evaluations. Only 40% of them were encouraged to seek dental care by healthcare professionals during pregnancy. 18 Some of the other studies showed many patients do not seek and are not advised to seek routine dental care as part of their prenatal care.

Patil et al.²² demonstrated gynecologists practicing at medical colleges and hospitals had significantly greater health awareness than doctors practicing in private hospitals. A survey conducted by Shah et al.²³ concluded that gynecologists have limited training regarding the oral health. They conducted a seminar on importance of oral health which improved their knowledge significantly. They demonstrated that occasional training programs or seminars should be conducted to maintain a symbiotic relationship between gynecologists and dentists to prevent

complications.

The health care of the patients is a reflection of the attitudes of obstetricians towards their oral health. It is also relevant to stress the importance of self-care to each member of the healthcare team, since they are the disseminators of knowledge to those under their care. There is a need for patient motivation as well as guidance to gynecologist about all treatments carried out by Periodontists that will enhance the treatment outcome as well as help in improving the patient referrals.

V. CONCLUSION

Gynecologists provides primary health care during pregnancy, so they are the first ones to diagnose gum diseases. They act as an ally between pregnant women and dentists in educating and motivating pregnant women the importance of oral health during pregnancy. In the present survey on gynecologists, it was concluded that gynecologists were aware of the facts and advised but not insisted patients on getting dental treatment. Therefore seminars & interactive workshops might help in creating awareness about the importance of oral health during pregnancy among gynecologists. Bilateral interdisciplinary protocol can thereby reduce the incidence of maternal and neonatal complications. Conjunctive treatment by gynecologists and dentists aid to improve the maternal oral health and reduce the postnatal complications.

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