



Enhancing Maternal and Fetal Health: The Perspective of Gynecologists in Pune City on Periodontal Disease and Pregnancy.

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ABSTRACT:

Aim: A cross-sectional study was conducted to evaluate the knowledge and practiced behaviors of gynecologists in Pune city regarding Periodontal outcomes and associations of Periodontal diseases in Pregnancy.

Materials and Methods: A questionnaire consisting of 28 questions was designed and pilot tested. Eighty Five gynaecologists practicing in the Pune city were approached to voluntarily participate and fill up the questionnaire and Data retrieved were entered into Excel database.

Result: Result shows that from 85 Gynecologist 95.3 % has adequate knowledge about adverse effects of periodontitis in pregnancy. 77.6 % noted common signs and symptoms such as calculus as well as Gingivitis .while 75.3 actually noted that Gingivitis is the main common Periodontal factor in pregnancy.

KEYWORDS: Low birth weight babies, Antenatal care, Gingival enlargement, Preterm birth.

I. INTRODUCTION

The periodontium is a specialized tissue that both surrounds and supports the teeth, maintaining them in the maxillary and mandibular bones. The word comes from the Greek terms $\pi\epsilon\rho\iota$ peri-, meaning "around" and -odont, meaning "tooth". There are four tissues that constitute the periodontium: cementum; the periodontal ligament (PDL); alveolar bone; and the gingiva.

Many systemic conditions affect periodontitis- like Diabetes, Smoking, Blood pressure as well as Pregnancy. The relationship between oral inflammation and systemic inflammation is critical to understanding the harmful consequences of oral inflammation on multiple organ systems, as well as the ability of oral disease to raise the risk of acquiring non-oral disease..

The impact of periodontitis on pregnancy outcomes has gained significant attention in recent

years. During pregnancy, hormonal changes can increase the risk of developing periodontitis, a gum infection that can affect both, the mother and the baby.(1,2) It is important for the expectant mother and the gynaecologist to be aware of the signs and symptoms of this disease such as swollen or bleeding gums, bad breath etc.

The inflammatory response triggered by periodontal disease can potentially affect the delicate balance of the maternal and fetal environment.

The major impact of periodontitis in pregnant women can cause preterm low birth weight child (PTLBW). Other factors such as smoking, alcohol or drug use during pregnancy, inadequate prenatal care, race, low socioeconomic status, nutritional status, hypertension, and genitourinary tract infection showed an increased risk of preterm low weight babies.. The direct effects of microorganisms may play an important role in many cases of preterm labour, premature rupture of membrane (PROM) and low birth weight deliveries.

Other than low weight babies, many other oral problems can arise with pregnancy which primarily include- Gingivitis, periodontal conditions such as recession, calculus, trauma from occlusion etc.(3)

Pregnancy gingivitis and periodontitis are one of the most common conditions observed in pregnant women. The reason behind this condition can be increased hormonal levels of Estrogen and Progesterone during pregnancy. They help with progression of periodontal diseases and delay the wound healing process. Their effects on the inflammatory phase are the most elucidated. Inflammation can contribute to delayed wound healing(4). They cause increased gingival vascularization and decrease in immune response.(5)

During pregnancy there is an increase in the number of microorganisms like Prevotella



species, which grow rapidly using steroidal hormones of pregnancy. These microorganisms increase inflammation, aggravate the gingival condition and bleeding gums.

Thus pregnant females show more gingival inflammation and bleeding gums even with low plaque level.

Maintaining good oral hygiene practices, including regular brushing, flossing and dental check ups can help prevent and manage periodontitis during pregnancy. Seeking professional dental care and staying informed about oral health is crucial for a healthy pregnancy journey.

Medical professionals, Gynaecologists play an important role in the overall health of pregnant individuals, and oral health is an integral part of the overall health. Being aware of the connection between periodontitis and pregnancy can greatly benefit their patients. By understanding the signs, risks, and management of periodontitis, gynecologists can provide valuable guidance and support to ensure optimal oral health during pregnancy.

This collaborative approach between gynaecologists and dental professionals can help promote better overall health outcomes for expectant mothers and their babies. It's important for health care providers to stay informed and work together to provide comprehensive care.

II. MATERIAL AND METHODS

A survey was carried out amongst Gynaecologist in Pune City utilising convenience sampling method. Prior to the final study involving overall 90 Gynaecologist, a pilot study with 20 gynaecologist was conducted to validate the questionnaire and determine the appropriate sample size. The prevalence of periodontal disease among the pregnant females population was considered to be 20% in the pilot survey which was taken for calculation of sample size. The sample size was determined using a single percentage formula. An absolute precision of 5% and 95% confidence interval was used for the following formula to calculate the sample size: $n = Z/2 p (1-p) / d^2$, where $Z/2$ is the normal's critical value. Distribution at $\alpha/2$. (at confidence level of 95%, α is 0.05 and the critical value is 1.96) $d =$ margin of error which is 5% considered here $p =$ prevalence of 20% (prevalence of periodontal disease among the population) Therefore, substituting the values in the formula $= 1.96 \times 1.96 \times 0.20 \times 0.20 / 0.05 \times 0.05 = 76$ Considering 10% of non-responsiveness, sample size was calculated as $N = n / 0.9 = 76 / 0.9 = 84$. The questionnaire's reliability was assessed with

Chronbach's Alpha - 0.614. Questionnaire tool was used in this study to perform the research analysis. The questionnaire was administered via a Google form which comprised of 28 multiple choice questions to gauge Gynaecologists' knowledge of Periodontitis in pregnant women and their treatment approaches. Google form link was distributed, along with detailed instructions provided through the online Google form by the corresponding author with proper consent and reason behind the study was explained. Total 90 responses collected from the Gynaecologists in Pune City and the final result were documented in the Excel sheet respectively

III. RESULT

A survey was conducted among 85 gynaecologists practicing in Pune to assess their knowledge of the association between periodontitis and pregnancy outcomes. Results showed that 95.3% of gynaecologists were aware of periodontal disease in pregnant females, with 50% acknowledging its prevalence mainly in the first trimester. Additionally, 86% recognized the benefits of good oral health during pregnancy. Common signs noted by 77.6% included calculus and gingival overgrowth. Recommendations from 74.1% involved interdental aids and routine scaling for maintaining periodontal health. About 49.4% suggested monthly dental check-ups, with 72.9% considering the second trimester safest. Gynaecologists observed bleeding gums, swollen gums, and bad breath in 78.6% of pregnant females, advising scaling and mouthwash for halitosis. Notably, 68.4% linked pregnancy to gingival overgrowth, while 17.6% associated gingivitis with low birth weight. A mere 1.2% believed gingivitis could lead to miscarriage. However, 78.8% agreed it could contribute to both low birth weight and preterm birth. Additionally, 75.3% identified gingivitis as the most common periodontal condition during pregnancy, with 40% considering it risky for both mother and foetus. Awareness of gingival enlargement stood at 80%, while 82.4% recognized periodontitis as a chronic inflammatory condition affecting maternal health. Medication awareness during pregnancy was noted by 70.6% and 67.1% believed that maintaining good oral health during pregnancy improved fetal health. A majority (55.3%) acknowledged studies supporting the link between periodontal health and pregnancy outcomes. Furthermore, 57.6% agreed that pregnancy increased the likelihood of gingival inflammation, and 63.5% recognized periodontal diseases as risk factors for systemic diseases. A substantial 52.9% agreed that addressing



periodontal health during pregnancy improved birth outcomes. Regarding dental surgeries during pregnancy, 15.8% recommended them based on

trimester, while 29.4% did not. 61.3% referred pregnant patients to dentists for antenatal care, while 21.1% did not.

Table 1: Awareness of periodontal diseases in pregnant females.

	N	PERCENTAGE
YES	8.1	95.3
NO	2.8	3.3
UNCERTAIN	2.0	2.4
TOTAL	85	98.9

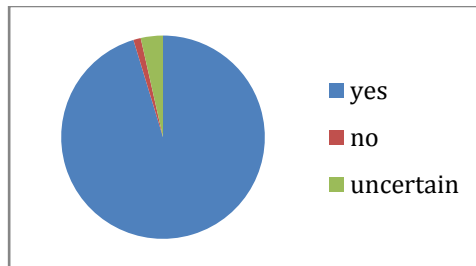


Table 2: Awareness of benefits of maintaining good oral health during pregnancy.

	N	PERCENTAGE
YES	72.2	85.9
NO	3.8	4.5
UNCERTAIN	7.9	9.4
TOTAL	85	100

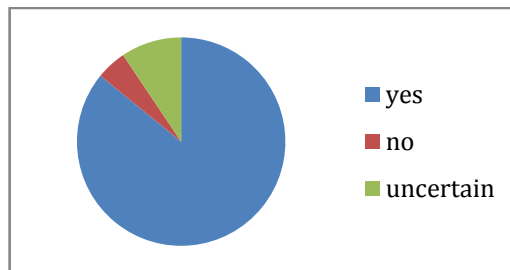


Table 3: Treatment plan for halitosis.

	N	PERCENTAGE
SCALING	3.9	4.7
MOUTHWASH RINSES	6.7	8.2
BOTH A AND B	70	82.4
DON'T KNOW	3.9	4.7
TOTAL	85	100

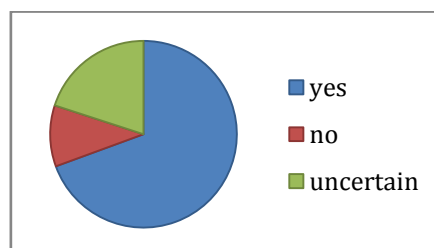




Table 4: Pregnancy being the most common factor for gingival overgrowth.

	N	PERCENTAGE
YES	58	69.4
NO	9.0	10.6
UNCERTAIN	17	20
TOTAL	85	100

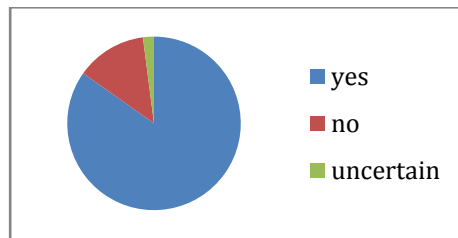
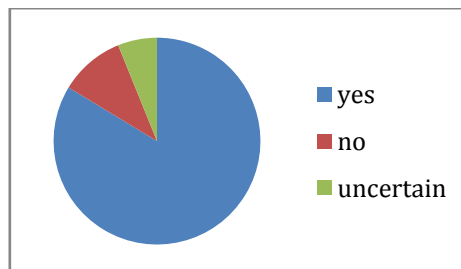


Table 5: Awareness about periodontitis that is a chronic inflammatory condition of the gums that can affect the pregnant women's health.

	N	PERCENTAGE
YES	70.0	82.4
NO	9.0	10.6
UNCERTAIN	6.0	7.1



IV. DISCUSSION

Gynaecologists play a crucial role in the primary healthcare of pregnant women, necessitating awareness of periodontitis during pregnancy. Our study in Pune reveals that most gynaecologists possess sufficient knowledge, attitude, and practice regarding periodontal issues in pregnancy, surpassing awareness levels in Ganganagar and Hubli-dharwad(2). Notably, 82% of Gynaecologists in Ganganagar(7) and 96% in Hubli-dharwad exhibited positive responses to periodontal treatment for pregnant women.(8)

Diverging opinions surfaced regarding the safest trimester for dental care, with 72% of Pune's Gynaecologists advocating for the second trimester. In contrast, a study in Hubli-dharwad demonstrated a split preference between the first and second trimesters.

Additionally, our findings suggest variations in primary complaints. Hashim's recent research reveals that a significant proportion of pregnant women in the UAE, specifically more than 40% of females, sought dental care primarily

due to experiencing pain.(9) Whereas our study shows that gynaecologist in Pune noticed Gingival overgrowth as primary complaint and 77.6% pregnant females had both calculus and Gingival overgrowth. This change can demonstrate that pregnant females in UAE(9) had less periodontal complications than pregnant females in Pune. Gingival overgrowth was prevalent in Pune, while pain complaints dominated in a study conducted by Hashim R, UAE.(9)

Furthermore, our study underscores the awareness among Pune's Gynaecologists about the link between gingivitis and adverse pregnancy outcomes, with 78.8% acknowledging its association with both preterm birth and low birth weight. This surpasses the awareness levels reported in a study by Mobeen et al., reflecting Pune's gynaecologists' heightened understanding of this relationship.

Examining the referral practices, a survey conducted in Hubli-Dharwad by Shephalika Sinha and Pragati Raghavendra Bhat(2) revealed some interesting findings. While 70% of gynaecologists



believed that dental checkups are necessary during pregnancy, only 28% of them actually referred their patients to dentists. In comparison, 67.2% of gynaecologists in Pune agreed on the importance of dental care for foetal health, with 95.3% being aware of periodontal conditions in pregnant women. Surprisingly, only 61.3% of gynaecologists in Pune actually referred their patients to dentists for antenatal care. This highlights the need for greater awareness among gynaecologists about the significance of providing prenatal dental care to pregnant women. Our study reveals that 67.2% of Pune's Gynaecologists recognize the necessity of dental care for foetal health, though only 61.3% actively refer patients for antenatal dental care. This suggests room for improvement in comprehending the importance of prenatal dental care among Gynaecologists in Pune.

In conclusion, while Gynaecologists in Pune exhibit commendable knowledge about periodontal consequences in pregnancy, there is still a need for increased understanding and promotion of prenatal dental care among this healthcare community.

V. CONCLUSION

The present study demonstrated that gynaecologists in Pune have a relatively high degree of knowledge with respect to the relationship of periodontal disease to pregnancy outcome. To provide better oral health care and to avoid adverse effects more knowledge needs to be made and should refer Pregnant women for routine dental check-up ..

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