



## AWARENESS ABOUT PERIODONTITIS AND PRE-TERM LOW BIRTH WEIGHT INFANTS AMONG GYNECOLOGISTS IN CHENNAI- A QUESTIONNAIRE STUDY

*Chennaideki Jinekologların Periodontitis ve Düşük Doğum Ağırlıklı Prematüre Bebekler Hakkındaki Farkındalığı: Bir Anket Çalışması*

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### ABSTRACT

**Background:** Periodontal infection has been associated with adverse pregnancy outcomes. Subsequently it is important that gynecologists are educated about hormonal effects on women's oral health. The current study assessed gynecologist's awareness regarding the effect of female sex hormones on periodontal health and preterm delivery.

**Materials and methods:** Sixty-six gynecologists from the city of Chennai completed a questionnaire regarding awareness about female hormonal and periodontal health and its effects on pre-term low birth weight infants. Respondents were divided into three groups: Group A, (doctors who practiced at a medical colleges) Group B (doctors who practiced at private hospitals) and Group C. (doctors who practiced at both medical colleges and private hospitals) Survey responses were collected and data between the groups were statistically compared.

**Results:** Our findings showed that most gynecologists were aware and concerned about female patient's oral health during various hormonal phases. However, gynecologists practicing at medical colleges (Group A) and gynecologists practicing at both medical colleges and private hospitals (Group C) had significantly greater health awareness than doctors practicing at private hospitals. (Group B)

**Conclusion:** The results of the current study imply the fact that there is adequate knowledge about the effects of hormonal changes in the periodontal tissues. However, there is limited incorporation of this knowledge, especially among gynecologists who are exclusively into private practice.

**Keywords:** Periodontitis, preterm low birth weight, scaling, root planing

### ÖZ

**Amaç:** Periodontal enfeksiyon, gebeliğin olumsuz sonuçlarıyla ilişkilendirilmiştir. Bundan dolayı jinekologların kadınların ağız sağlığı üzerindeki hormonal etkileri konusunda eğitim alması önemlidir. Mevcut araştırma kadın seks hormonlarının periodontal sağlık ve erken doğum üzerindeki etkileri konusundaki jinekologun farkındalığını değerlendirdi.

**Gereç ve yöntem:** Chennai şehrinde altmış altı jinekolog, kadınlarda hormonal ve periodontal sağlık ile düşük doğum ağırlıklı prematüre bebeklere etkileri konusundaki bir anketi doldurdu. Katılımcılar, A Grubu (tıp fakültesinde çalışan jinekologlar), B Grubu (özel hastanelerde çalışan jinekologlar) ve C Grubu (hem tıp fakültelerinde hem de özel hastanelerde çalışan jinekologlar) olmak üzere üç gruba ayrıldı. Anket yanıtları toplandı ve gruplar arasındaki veriler istatistiksel olarak karşılaştırıldı.

**Bulgular:** Çalışmanın sonuçları, çoğu jinekologun, çeşitli hormonal fazlarda kadın hastalarının ağız sağlığı konusunda bilgili olduklarını ve endişe duyduğunu ortaya koymuştur. Bununla birlikte, tıp fakültelerinde çalışan jinekologlar (Grup A) ve hem tıp fakültelerinde hem de özel hastanelerde çalışan jinekologlar (Grup C), özel hastanelerde çalışan doktorlardan (Grup B) istatistiksel olarak anlamlı derecede daha fazla sağlık bilincine sahip bulundu.

**Sonuç:** Bu çalışmanın sonuçları, hormonal değişikliklerin periodontal dokular üzerindeki etkileri hakkında yeterli bilgi bulunduğu sunmaktadır. Bununla birlikte, bu bilginin, özellikle özel hastanelerde çalışan jinekologlar arasında sınırlı bir şekilde göz önünde bulundurulması söz konusudur.

**Anahtar Sözcükler:** Periodontitis, prematüre düşük doğum ağırlığı, diş yüzeyi temizliği, kök yüzeyi düzleştirme

## INTRODUCTION

A high prevalence of periodontitis is noted among adults regardless of sex, race, education, residence or socio economic status. Changes in female sex hormone levels during pregnancy are related to the enhanced susceptibility to gingival inflammation.<sup>1</sup> Female sex hormones have a multifunctional influence on the periodontal condition in different parts of the life cycle in women.<sup>2</sup> These hormones also play an important role in the pathogenesis of pregnancy related gingivitis.<sup>3</sup> Increased sex steroid hormone levels can cause edema in tissues by increasing the vascular permeability and cellular proliferation in blood vessels.<sup>4,5</sup> Elevated estradiol and progesterone concentrations during pregnancy alter the quality of sub-gingival microbiota towards a higher anaerobe-aerobe ratio by favoring the growth of certain gram-negative anaerobes in the oral cavity.<sup>6</sup>

Research clearly demonstrates that puberty, menstrual cycle, pregnancy, oral contraception use and menopause affect gingival tissue. Since gynecologists assess and treat women across their life span and during these hormonal changes, it is important that these doctors understand the influence of hormonal fluctuations on a women's periodontal health. Pre-term low birth weight infants (those infants who are born in less than 37 weeks of gestation and have a birth weight of less than 2500 grams) are prone to various abnormalities like respiratory problems, neuro-developmental problems and congenital problems.<sup>7</sup> There are various causes of such preterm low birth weight deliveries and periodontal infection is said to be one of them.<sup>8</sup> Gestational length can be affected by both generalised infections, including viral respiratory infections, diarrhoea and malaria and more localised infections of the genital and urinary systems.<sup>9-12</sup>

A periodontal infection may influence the pregnancy outcomes by providing a source of

gram-negative anaerobic organisms and bacterial components such as lipopolysaccharides. These can trigger release of immune mediators such as PGE2 and TNF- $\alpha$ , which is normally involved in normal parturition, and in turn, may influence the course of pregnancy.<sup>13, 14</sup> Therefore, this study assesses gynecologists' knowledge regarding the awareness about female hormonal and periodontal health and its effects on pre-term low birth weight infants.

## MATERIALS AND METHODS

A cross sectional survey was conducted among 100 gynecologists in Chennai among which 66 responded to the survey. Survey responders were divided into three groups based upon institutional practice. Group A included doctors practicing at a medical college, Group B included doctors practicing at private hospitals and Group C included doctors practicing at both medical college and private hospitals. The questionnaire (Table 1) was individually distributed and answers were collected.

**Table 1: Questionnaire**

AWARENESS ABOUT PERIODONTITIS AND PRE TERM LOW BIRTH WEIGHT AMONG GYNECOLOGISTS IN CHENNAI	
AGE:	GENDER:
ACADEMICS / PRIVATE PRACTITIONER / BOTH	
NUMBER OF YEARS OF EXPERIENCE:	
1. Do you think tooth and gum problems could affect outcomes of pregnancy?	
a) Yes b)No	
2. Do you think pregnancy increases for the gums to bleed, swell or be red?	
a) Yes b)No	
3. If your answer is 'Yes' for second question, would you advise visiting a dentist?	
a) Yes b)No	
4. Do you think that periodontal disease is a risk factor for preterm low birth?	
a) Yes b)No	
5. Do you think treatment of periodontal disease during pregnancy is feasible and may reduce the risk of preterm birth?	
a) Yes b)No	
6. Are you aware of the term 'pregnancy gingivitis'?	
a) Yes b)No	
7. Do you think that progesterone and estrogen play a major role in causing gingivitis during pregnancy?	
a) Yes b) No	
8. Do you think that periodontal disease can be treated safely during pregnancy?	
a) Yes b)No	
9. Do you think scaling and root planing procedures can be done during pregnancy to eliminate periodontal disease?	
a) Yes b)No	
10. Do you think counseling pregnant patient about periodontal disease and prematurity is important for health?	
a) Yes b)No	

Respondents' data were statistically analyzed. The Chi square test was used to determine statistically significant difference between

groups A, B and C. The collected data was analysed with SPSS 16.0 version. To describe about the data descriptive statistics, frequency analysis, percentage analysis, mean and S.D were used. To find the significance between the variables Pearson's Chi-Square test was used. In the above statistical tool the probability value .05 is considered as significant level.

## RESULTS

About sixty six gynecologists completed the questionnaire. There were sixty-five females and one male gynecologist who participated in the survey. Of the sixty six doctors, 27 doctors belonged to Group A, 20 doctors belonged to Group B and 19 doctors belonged to Group C. The results showed that Group A and group C doctors believed it was more important to refer patients for dental care compared to Group B doctors. In fact, table 2, shows a significant difference in the responses as about 92.5% of Group A gynecologists and 78.9% of Group C doctors would refer cases of gingival tissue changes to a periodontist for further dental health, compared to only 60% of Group B gynaecologists. (p=0.026)

**Table 2:** Survey Responses

		Academics (%)	Private practitioner (%)	Both (%)
1. Do you think tooth and gum problems could affect outcomes of pregnancy?	Yes	27 (100%)	20(100%)	19(100%)
	No	0	0	0
2. Do you think pregnancy increases gums to bleed, swell or be red?	Yes	27(100%)	20(100%)	19(100%)
	No	0	0	0
3. If your answer is 'Yes' for second question, would you advise visiting a dentist?	Yes	25(92.5%)	12(60%)	15(78.9%)
	No	2(7.4%)	8(40%)	4(421%)
4. Do you think periodontal disease is a risk factor for preterm low birth?	Yes	27(100%)	20(100%)	19(100%)
	No	0	0	0
5. Do you think treatment of periodontal disease during pregnancy reduces the risk of preterm birth?	Yes	27(100%)	20(100%)	19(100%)
	No	0	0	0
6. Are you aware of term 'pregnancy gingivitis'?	Yes	27(100%)	20(100%)	19(100%)
	No	0	0	0
7. Do you think progesterone & estrogen play a major role in causing gingivitis during pregnancy?	Yes	27(100%)	20(100%)	19(100%)
	No	0	0	0
8. Do you think periodontal disease can be treated during pregnancy?	Yes	27(100%)	18(100%)	19(100%)
	No	0	2(10%)	0
9. Do you think scaling & root planing can be done during pregnancy to eliminate periodontal disease?	Yes	26(96.2%)	14(70%)	19(100%)
	No	1(3.7%)	6(30%)	0
10. Do you think counseling pregnant patients about periodontal disease & prematurity is important for health?	Yes	27(100%)	11(55%)	19(100%)
	No	0	9(45%)	0

Groups A, B and C expressed similar beliefs on all other survey questions. For example, almost all the doctors are well aware about the relation between periodontal health and female hormones. Hundred percent of the doctors agreed that hormonal fluctuations may change gingival tissue across a woman's reproductive phase. There was no significant differences in response for question number 5 that is all gynecologists agreed that treatment of periodontal disease during pregnancy is feasible and may reduce the risk of preterm birth.

Almost all gynecologists agreed that periodontal disease is a risk factor for 'Preterm Low Birth Weight'. When asked if periodontal disease can be treated during pregnancy almost all gynecologists agreed in the affirmative with a statistically insignificant difference in the responses across the 3 groups. (p=0.093) The results also show that about 96.2% gynecologists from Group A, 70% gynecologists from Group B and 100% gynecologists from Group C agreed that scaling and root planing procedures can be done during pregnancy to eliminate periodontal disease with a statistically significant response between group A and B. (p=0.003) when asked about whether counselling a pregnant patient about periodontal disease and prematurity is important for health shows that only 100% of the respondents in group A and C agreed to that whereas only 55% of the respondents in group B agreed to it implying the deficiency of knowledge or reluctance on the part of the gynecologists in private hospitals to inform and educate patients about the importance of periodontal infection and its relationship to adverse pregnancy outcomes. (p=0.00)

## DISCUSSION

Although several studies have investigated doctors' attitude and awareness of the association between oral health and pregnancy outcomes, the present study is unique because

it assessed gynecologists' awareness of pregnancy outcomes in addition to knowledge about hormonal-induced gingival changes throughout a woman's reproductive phase. We found that most gynecologists were well educated and concerned about a female patient's oral health during different hormonal phases. Our findings contribute to the literature regarding gynecologists' knowledge of oral health, particularly periodontal health, for female patients.<sup>15, 16</sup>

Our data showed that gynecologists from Group A and C demonstrated greater awareness of the need for dental follow-ups compared to gynecologists from Group B. The difference in awareness may be explained by the fact that doctors in medical colleges (Group A and Group C) are continually updated with current knowledge for teaching and research purposes. The present study showed that while all of the gynecologists knew about hormonal influences on the periodontium, a few private practitioners were less aware of the importance of a regular dental check up and the to counsel pregnant patients with regards to periodontal disease. These findings are supported by Wilder et al who concluded that obstetricians were well aware of periodontal disease as a potential risk factor for PLBW but showed limited incorporation of this knowledge into clinical practices.<sup>17</sup> Almost all respondents agreed that hormonal fluctuations might induce gingival tissue changes across the female life cycle.

## CONCLUSION

Preventive, routine and emergency dental care procedures should be provided to pregnant patients. Beyond treatment there is need for pregnancy specific preventive care and oral health education. It is recommended to arrange training both dentists and obstetricians in the oral health needs, screening and care of pregnant patients, as a part of parental care.

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