

An Assessment of Association of Gravidity of Pregnant and Non-Pregnant Females with Periodontal Health and Periodontal Treatment Needs

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ABSTRACT

Objective: To assess the association of gravidity of pregnant and non-pregnant females with their periodontal health and treatment needs.

Methodology: A cross sectional study was conducted from March 2019 to August 2019 among 44 pregnant and 52 non-pregnant women visiting the gynecology department of Sharif Medical and Dental College and Raiwind Polyclinic, Lahore (community outreach program of the institute) using non-probability convenient sampling technique. Data was collected using the Community Periodontal Index of Treatment Needs (CPITN).

Results: A non-significant association was seen between the periodontal health and gravidity of pregnant females ($p=0.454$) and non-pregnant females ($p=0.863$). Most of the primigravida had periodontal treatment needs (TN1). TN 2 was required by both groups equally

Conclusion: Primigravida pregnant females had a higher percentage of healthy periodontium while the multigravida pregnant females had more calculus deposition and a higher percentage of pocket depth 4-5mm. The multigravida non-pregnant patients had calculus deposition as their major periodontal problem followed by bleeding gums. Most of the primigravida pregnant females required oral hygiene instructions and had periodontal treatment needs (TN1). Those requiring (TN 2) were approximately equal in both groups while none of the females from both the groups required complex treatment (TN3).

Keywords: Primigravida, Multigravida, periodontal health, pregnant females, periodontal treatment needs.

INTRODUCTION

Optimal oral hygiene during pregnancy is now considered as a crucial factor because of its immediate and long-lasting impact on maternal and children's general health.¹ During pregnancy women suffer various conditions like nausea, vomiting, reflux, xerostomia, unhealthy dietary habits, fatigue, general physical weakness and stress that may results in inadequate maintenance of oral hygiene.² Moreover the fluctuations of hormones (estrogen and progesterone specifically) in pregnancy exacerbate gingivitis, periodontitis, gingival hyperplasia, pregnancy granuloma, dental caries, altered salivary flow and may reduce repair potential of soft and hard tissues of oral cavity.³

Periodontal pockets are storehouse for oral microbiota, it's modification is a potential mechanism for periodontal disease (PD) development in pregnancy. Inflammatory disease of supporting structures surrounding the tooth is Periodontal disease (PD). The risk of PD is high especially in pregnancy and, pre-existing PD tends to aggravate during pregnancy.⁴ The prevalence of PD's in pregnant ladies has been determined worldwide, ranging 3% to 90%. For example, 3.1% in USA,⁵ 14.2% to 89% in African countries,^{6, 7} 73% in Indonesia,⁸ 83.5% in Egypt⁹ and it was 76% in Pakistan (in a research of 2008).¹⁰

Women who suffer PD during pregnancy may have an increased risk of adverse pregnancy outcomes (APOs). APOs associated with PD are preterm delivery, low birth weight, preeclampsia and eclampsia.^{11, 12} However, it is now evident that oral hygiene of pregnant women has a strong relationship with her general physical health.¹³ Many studies presents negative attitude of pregnant women towards their dental care and utilization of dental resources during pregnancy.¹⁴ The CDC and pregnancy risk assessment monitoring system PRAMS comes with a report that only 23% to 35% childbearing women received dental care.¹⁵ The aim of this study was to assess the association of gravidity of pregnant and non-pregnant females with their periodontal health and treatment needs.

METHODOLOGY

A cross sectional study was conducted from March 2019 to August 2019 among 44 pregnant and 52 non-pregnant women visiting the

gynecology department of Sharif Medical and Dental College and Raiwind Polyclinic, Lahore (community outreach program of the institute) using non-probability convenient sampling technique. Sample size was calculated taking the minimum prevalence of periodontal disease to be 5% among pregnant women and keeping the level of significance at 5% with power of study 90%, the sample size obtained was 44 using an online sample size calculator. Demographics like name, age, gender, occupation and residence were recorded. Informed consent was taken from every participant prior to data collection. The inclusion criteria were women who gave consent to be a part of the study and were in the child bearing age. While women who had any systemic illness were excluded from the study.

All assessed data was entered in a specially designed proforma containing tables of all the indices used. Data was collected using the Community Periodontal Index of Treatment Needs (CPITN). The equipment used included the CPITN probe and Mouth mirror. The data was analyzed using SPSS version 23 and all nominal data was entered in frequencies and percentages whereas all numerical data was entered as mean with its respective standard deviation. Fisher exact test was used to find the association of periodontal health of pregnant and non-pregnant females in association with their gravidity.

RESULTS

A cross sectional comparative study was conducted on a total of 96 women, 44 pregnant visiting the gynecology department Sharif Medical and Dental College and Raiwind Polyclinic Lahore (community outreach program of Sharif Medical and Dental College) with a mean age of 26.86±4.511 (years) for pregnant women and 31.08±7.213 (years) for non-pregnant women.

Table 1 shows primigravida pregnant females had a higher percentage of healthy periodontium but also experienced more bleeding. The multigravida pregnant had more calculus deposition and a higher percentage of pocket depth 4-5mm. Furthermore, it was also evident that multigravida non-pregnant patients had calculus deposition as their major periodontal problem followed by bleeding gums as shown in table 1.

Table 1: Periodontal health of pregnant patients with respect to gravidity

Health Status		Periodontal Health					P Value
		Healthy	Bleeding	Calculus	Pocket depth 4-5mm	Pocket depth 6mm	
Pregnant patient	Primigravida	3(6.8%)	2(4.5%)	9(20.5%)	0(0%)	0(0%)	0.454
	Multigravida	6(13.6%)	1(2.3%)	20(45.5%)	3(6.8%)	0(0%)	
Non pregnant patient	Primigravida	0(0%)	0(0%)	7(13.5%)	0(0%)	0(0%)	0.863
	Multigravida	0(0%)	2(3.8%)	26(50%)	1(1.9%)	1(1.9%)	
	Nulligravida	1(1.9%)	0(0%)	13(25%)	1(1.9%)	0(0%)	

Table 2: periodontal treatment needs of pregnant patients with respect to gravidity

Age	No. Of dentate persons	Group	Periodontal treatment needs			
			%TN 0	% TN 1	% TN 2	%TN 3
17-37 years	14	Primigravida	14.3%	85.7%	76.2%	0%
	30	Multigravida	20%	80%	76.7%	0%

Table 2 shows that all a higher percentage of individuals from the multigravida group required no treatment as compared to the primigravida. A higher percentage of females from the primigravida group required oral hygiene instructions and had periodontal treatment needs (TN1). It was also seen that the patients requiring Scaling and prophylaxis and Oral hygiene instructions (TN 2) were approximately equal in both groups. Furthermore, none of the females from both the groups required complex treatment (deep scaling, root planning and complex surgical procedures), scaling and prophylaxis and Oral hygiene instructions (TN3) as shown in table 2.

DISCUSSION

Women reported in dental clinics during antenatal periods, less than half of them got referrals and recommendations from their obstetricians.¹ It's controversial till now whether dental treatment is safe in prenatal period or not. Both patients and dentists usually avoid treatments in pregnancy because of limited awareness, lack of dental insurance packages, lack of standard practice and absence of dental management clinical guidelines.^{16, 17} Recent studies indicated that some dental treatments like extractions, Local anesthetics, root canal treatments, scaling and root planning can be performed without hesitation in antenatal periods.^{18, 19} Clinical guidelines regarding dental management of pregnant women should be followed. In researches, although scaling and root planning is beneficial in reducing the microbiota that may interact with microbes of placenta.^{4, 20}

According to our study Primigravida pregnant females had a higher percentage of healthy periodontium while the multigravida pregnant females had more calculus deposition and a higher percentage of pocket depth 4-5mm. The multigravida non-pregnant patients had calculus deposition as their major periodontal problem followed by bleeding gums.

Treatment of PDs for nulliparous women and multiparous women is either before pregnancy or in the period between pregnancies respectively.^{21,22} Its found by observational studies that treatment for periodontal diseases during pregnancy does not prevent APOs.²³ The aim of this study is to enhance the importance of oral health status of women of reproductive potential by assessing the treatment needs in association with their gravidity. According to ours study a higher percentage of pregnant females from the primigravida group required oral hygiene instructions and had periodontal treatment needs (TN1). It was also seen that the patients requiring Scaling and prophylaxis and Oral hygiene instructions (TN 2) were approximately equal in both groups. Furthermore, none of the females from both the groups required complex treatment (deep scaling, root planning and complex surgical procedures), scaling and prophylaxis and Oral hygiene instructions (TN3).

The discovery made by Løe and Silness, who noted that the periodontal inflammation subsided after delivery. Instead of being an indication of real gingival tissues loss, requiring an ongoing inflammatory infection enduring more beyond the course of the pregnancy, periodontal inflammation was believed to be caused by greater fluid buildup inside the gingival tissue²⁴. Xie et al. also

discovered a reduction in in average probing pocket depth, and clinical attachment levels and the number of women having gingivitis when analyzing alterations in women's gingival health between a mean of 31.3 ± 3.7 weeks' pregnancy to 21.6 ± 3.4 months postpartum²⁵

All of the responders of a study conducted by OI Opeodu reported that women who had their treatment needs evaluated required OHI as well as prophylaxis throughout pregnancy, although this percentage significantly decreased to 98.5% after giving delivery. Additionally, the need for complicated care decreased from 48.4% of pregnancies to 2.02% of deliveries²⁶. The research's significant prevalence of treatment needs contrasts with data from Agbelusi et al. who found that 50.0% of the expectant women in their investigation needed prophylaxis whereas 32.2% needed no therapy²⁷. The reported prevalence of treatment needs amongst female participants was additionally greater compared to that of Yaghobi and Haghigati, which stated that 33% of the study's participants needed extensive periodontal therapy and 25% of the responders needed therapy prophylactically²⁸.

CONCLUSION

Primigravida pregnant females had a higher percentage of healthy periodontium while the multigravida pregnant females had more calculus deposition and a higher percentage of pocket depth 4-5mm. The multigravida non-pregnant patients had calculus deposition as their major periodontal problem followed by bleeding gums. A higher percentage of pregnant females from the primigravida group required oral hygiene instructions and had periodontal treatment needs (TN1). It was also seen that the patients requiring Scaling and prophylaxis and Oral hygiene instructions (TN 2) were approximately equal in both groups. Furthermore, none of the females from both the groups required complex treatment (deep scaling, root planning and complex surgical procedures), scaling and prophylaxis and Oral hygiene instructions (TN3).

Limitation: A larger sample size and multicenter study would have unraveled more findings.

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