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Salivary Flow and ph in pregnant patients

Flujo y ph salival en pacientes en pacientes gestantes

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Abstract

Saliva is multifunctional: cleaning of the oral cavity, lubrication, preservation, repair of mucous membranes and dental hard tissues; the pH and its buffering, also participates in the elimination of bacteria, digestion and speech. The salivary composition in gestational period is altered, with variation of salivary pH and buffer capacity. Objective. To determine the levels of pH and salivary flow that prevail in pregnant patients. Methodology. Descriptive, prospective and transversal study. Sampling for convenience: pregnant patients in the 1st, 2nd and 3rd trimesters who attended the UMF. 61 to medical control of their pregnancy. Using a calibrated JENWAY 3510 Ph Meter potentiometer. Saliva samples were collected at least one hour after eating. Contribution. The salivary pH in pregnant women is lower in the first quarter than in later ones. According to Spearman's test analysis, a positive correlation is reported (r2 = 0.34), the correlation of ranges between pH and salivary volume is statistically significant even if it is weak. The salivary pH is lower in the first quarter than in the two subsequent ones, the salivary flow does not vary significantly in the first and second quarters, but it increases in the third quarter.

Saliva, Ph, Pregnant women

Resumen

La saliva es multifuncional: limpieza de cavidad bucal, lubricación, conservación, reparación de membranas mucosas y tejidos dentales duros; el pH y su amortiguación, también participa en la eliminación de bacterias, la digestión y el habla. La composición salival en periodo gestacional se ve alterada, con variación del pH salival y la capacidad buffer. Objetivo. Determinar los niveles de pH y flujo salival que prevalecen en las pacientes gestantes. Metodología. Estudio Descriptivo, prospectivo y transversal. Muestreo por conveniencia: pacientes gestantes 1º, 2º y 3er trimestre que acudieron a UMF. 61 a control médico de su embarazo. Empleando un potenciómetro JENWAY 3510 Ph Meter, calibrado. Las muestras de saliva fueron recolectadas al menos una hora después de comer. Contribución. El pH salival en gestantes es menor en el primer trimestre que en los posteriores. De acuerdo con la prueba de análisis de Spearman, se reporta una correlación positiva ($r^2 = 0.34$), es estadísticamente significativa la correlación de rangos entre el pH y el volumen salivales aun cuando es débil. El pH salival es menor en el primer trimestre que en los dos posteriores, el flujo salival no varía significativamente en el primer y segundo trimestres, pero si aumenta en el tercer trimestre.

Saliva, Ph, Gestantes

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Introduction

Saliva is a fluid present in the oral cavity made up of 99% water and a minimal amount of electrolytes, tiny organic molecules such as hormones and glucose, as well as proteins such as immunoglobulins, enzymes and glycoproteins whose quantity and quality they influence the ability of saliva to perform various functions throughout the day. It is a fluid that, in addition to being composed of the secretions of the major and minor salivary glands, contains a mixture of gingival exudate, microorganisms and their products, epithelial cells, nasal exudate and food remains. Hernández Molinar and Cols. 2019.

Pregnancy is a period of significant physiological, metabolic and morphological changes in women, which elapses from the implantation of the zygote in the uterus until the moment of delivery, with the function of nourishing and allowing the development of the fetus and preparing the body for the mother for breastfeeding. Gestation refers to the development of the fetus, many people refer to these two terms synonymously.

Specifically, changes will occur in the oral tissues produced by the modification of the pH level and the amount of salivary flow, these factors when affected produce favorable conditions for the development and the appearance of biofilm, giving rise to conditions that favor the presence of cavities and periodontal disease, affecting oral health. Bouza Vera et al. 2016.

Saliva is composed of water in about 99%, while the remaining 1% is made up of inorganic compounds, proteins, carbohydrates, lipids, desquamated epithelial cells, bacteria and their products, viruses and fungi, food remains, some bronchial secretions and components of crevicular fluid such as blood cells and immunoglobulins. It is sterile in its place of origin, but when it comes into contact with the crevicular fluid, other foods, microorganisms and desquamated cells of the oral mucosa, it stops being sterile. Edgar WM. 2016.

Objective

Determine the pH and salivary flow levels that prevail in pregnant patients.

Methodology

Descriptive, prospective and cross-sectional study. Convenience sampling: 1st, 2nd and 3rd trimester pregnant patients who attended the UMF. 61 to medical control of your pregnancy. Saliva samples were collected at least one hour after eating.

The sample was made up of 40 pregnant patients from different trimesters of pregnancy, who attended the 61 Family Medical Unit. The total volume of saliva was calculated without taking into account the foam, with an adjustable 1 ml pipet, using plastic tips. The salivary flow rate was calculated taking into account the total collection time and the volume of saliva.

A JENWAY 3510 Ph Meter potentiometer was used, which was previously calibrated by using two buffer substances, one with pH 5 and the other with pH 9. Once calibrated, each sample was measured using the electrode. By recording the results obtained in the registration table of pregnant patients who attended UMF No. 61 and who met the selection criteria, the pH value found was placed in the patient's collection form.

Results

Salivary pH in pregnant women is lower in the first trimester than in the later ones. According to the Spearman analysis test, a positive correlation is reported (r2 = 0.34), the correlation of ranges between pH and salivary volume is statistically significant even when it is weak. Salivary pH is lower in the first trimester than in the subsequent two, salivary flow does not vary significantly in the first and second trimesters, but does increase in the third trimester.

Gestational Trimester				
Gestational Trimester	1st Trimester	2nd Trimester	3rd Third	Total
Px Pregnant	5	15	20	40
	12.50%	37.50%	50%	100%
n-%	5- 12%	15 - 37.5 %	20 - 50%	40 - 100%

Table 1 Pregnant patient population by gestational trimester

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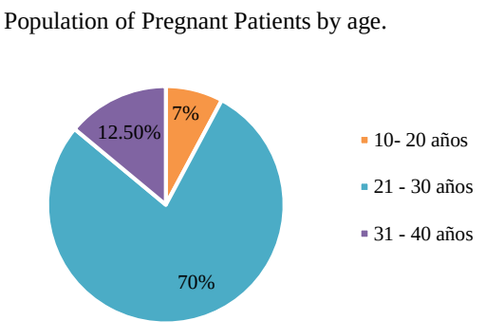
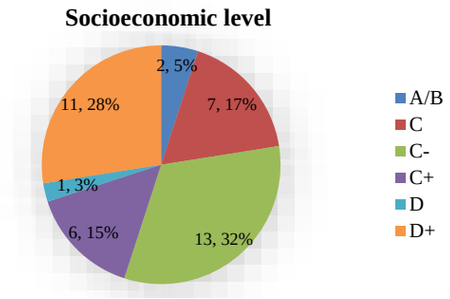


Graphic 1 Percentage population of pregnant patients by age



Graphic 2 Socioeconomic level of the pregnant women in the study

Of the total sample of 40 patients, who completed the socioeconomic questionnaire, we found that the socioeconomic level that most predominates in C-, followed by D +, the socioeconomic level that least predominates is D.

The classification in Mexico is:

- Socioeconomic Level A / B is High
- Socioeconomic Level C + is Medium High
- Socioeconomic Level C is Typical Medium
- Socioeconomic Level C- is Medium Emerging
- Socioeconomic Level D + is Low Typical
- Socioeconomic Level D is Extreme Low
- Socioeconomic Level E is Low Very Extreme

Central trend measures in relation to the study variables			
Pregnant	Trimester	Salivary volumen	PH
Half	2.37	6.39	7.6
Fashion	3	6	7.3
Median	2	6	7.6

Table 2 Central trend

Spearman analysis

Independent variables	Standard deviation	Coefficient	P
Salivary pH	0.34	0.34	0.033 *
Salivary volume	3.77		

Table 3 A p of 0.05 was established as statistically significant

According to the Spearman analysis test, a positive correlation is reported (r2 = 0.34), the correlation of ranges between pH and salivary volume is statistically significant even when it is weak.

Discussion

It has been shown that there are variations in the chemical composition of saliva and that this varies not only from subject to subject, but within the same subject. Numerous factors are those that influence both the quality of salivary flow and its composition, among which are: eating, circadian rhythm, sex, age, climate, height, as well as ingestion of drugs, drugs, genetic factors and physiological states.

In the present study of 40 pregnant patients, it was found that the salivary pH of pregnant women is lower in the first trimester than in the subsequent two, due to continuous nausea, vomiting, absence of toothbrushing, hormonal factors, as well as the time The collection of saliva and the stimulus used play a preponderant role in saliva pH.

In the present study we were able to observe that salivary flow does not vary significantly in the first and second trimesters of pregnancy, but it does increase in the third trimester, according to the work of Hernández Molinar, 2019, giving as a possible explanation the hormonal factor, which plays an important role in saliva secretion.

Conclusions

- The research hypothesis is affirmed, concluding: There is a relationship between the pH level and the amount of salivary flow in pregnant patients.
- The patients of the population that predominated the most during the study carried out were those in the third trimester.

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- According to the information collected from 40 patients, the average salivary pH was 7.6.
- According to the information collected from 40 patients, the average salivary volume was 6.3 ml.
- Finally, it is concluded according to Sperman's statistical study that there is a positive and significant correlation between the two study variables of p = 0.033

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