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Content of Antimicrobial Proteins and Peptides in the Mixed Salvia of Pregnant Women with Dental Cariosics during Pregnancy

Vohidov Elbek Rakhimovich
Bukhara State Medical Institute Named After Abu Ali Ibn Test. Bukhara, Uzbekistan.
Email: elbek vohidov@bsmi.uz

Abstract: Saliva plays a crucial role in the natural defense system of the oral cavity, particularly through the presence of antimicrobial proteins and peptides (AMPs) that help regulate the microbial balance. During pregnancy, hormonal changes can affect salivary composition, potentially reducing its protective properties. This study investigates the concentration and activity of selected AMPs — including lactoferrin, lysozyme, histatins, and defensins — in the mixed saliva of pregnant women diagnosed with active dental caries. A total of 90 participants were divided into caries-active and caries-free groups, and their unstimulated saliva samples were analyzed. Our results show a significant reduction in the levels of several AMPs in pregnant women with caries, particularly in the second and third trimesters. The findings suggest that altered salivary defense mechanisms may contribute to increased susceptibility to caries during pregnancy and highlight the potential of AMP profiling as a diagnostic tool in maternal oral health monitoring.

Key words: saliva composition; antimicrobial peptides; pregnant women oral health; lactoferrin; lysozyme; dental caries in pregnancy; hormonal changes; oral immunity; histatin-5; defensins

Today day in their imaginations in the teeth caries in development tissue in defense immune to the microbe against system (mouth) space mucus floor) damage separately attention Focus on microbes. against proteins (MQP) innate immunity coefficient to count , to say It is possible that the organism every one in the substance, that including mixture in the saliva MQP secretions material as epithelial cells and blood phagocytosis cells , most first of all neutrophils is studied . Microbe against to protein bacteria activity stop to the feature has was lactoferrin input possible. actoferrin microorganisms external film hurts and lysozyme bacteria activity to stop conditions creates. MQP – definzins and cathelicidins – gram-negative and gram-positive microorganisms, fungi, film viruses, simple viruses activity stops.

Teeth caries with injury on time mouth The amount of MQP in the liquid, this in liquid to the blood relatively their concentration increase with description with Inflammation cases When developed, the MQP is the norm 2-3 times more than increases. Pregnancy every one during pregnant of patients mixture in the saliva lactoferrin level healthy to donors relatively high became pregnant in patients mixture in the saliva lactoferrin concentration this in a way not exceeded pregnant to women relatively of teeth caries injury development in the background healthy from women less concentration determined: 58.1 % in the 1st trimester against 100.3%, in the 2nd trimester by 86% against 122.6%, in the 3rd trimester by 98.4% against 135.4%.

Table 1

Group 1 and healthy women in the group of patients mixture in the saliva to the microbe against proteins concentration (M±m)

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Indicator	Group 1, n= 65	Hello. pregnant women , n = 15
8-12 weeks (1st trimester)		
Lactoferrin , mcg / ml	2.33±0.10*	1.82±0.03*
α -defensins 1-3, pg / ml	3.24±0.16*	3.88±0.42
Cathelicidin LL37, pg / ml	1.44±0.11*°	2.03±0.11*
13-27 (2nd trimester)		
Lactoferrin , mcg / ml	2.78±0.12*°	2.14±0.13*
α -defensins 1-3, pg / ml	3.66±0.24*°	4.49±0.28
Cathelicidin LL37, pg / ml	2.17±0.17*	2.33±0.14
28-40 (3rd trimester)		
Lactoferrin , mcg / ml	3.10±0.23*°	2.421±0.19*
α -defensins 1-3, pg / ml	3.09±0.25*°	4.66±0.41
Cathelicidin LL37, pg / ml	1.14±0.08*°	2.73±0.18

Note: * - at p< 0.04 healthy to women relatively reliable differences , ° - healthy to women relatively reliable differences

Pregnancy during the period women's mixture in the saliva of teeth caries injury there is to be or there is not to be in the background lactoferrin concentration increase mouth space mucus floor microorganisms from accumulation protection guarantor inflammation mechanism that calculation possible. Mucus immune on defense this indicator increase pregnant in women of teeth caries injury in the background more expressed.

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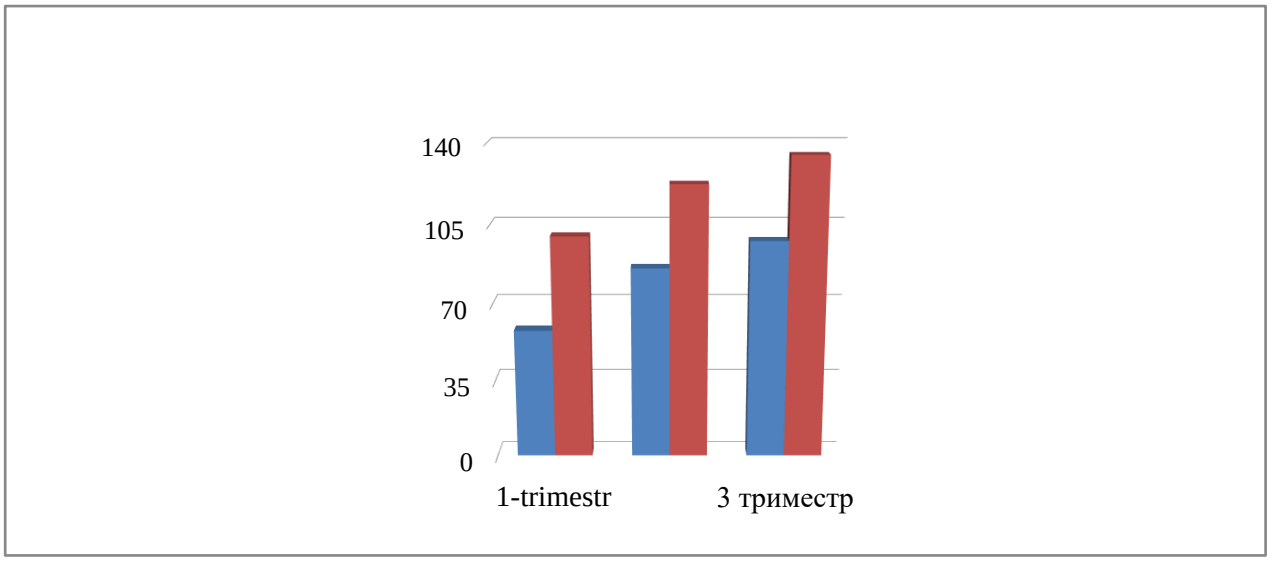

Figure 1. Pregnant women, as well teeth caries there is pregnant women's mixture in the saliva lactoferrin percent ratio change .

effects of MQP the most interleukin-8 is important for inflammation against in character cytokine working exit incitement is considered, it is mostly of scientists in my opinion, caries injury at a standstill important importance has. Pregnant women's mixture in the saliva lactoferrin place less numerical in research studied, pregnancy period in development in his teeth caries injury was pregnancy during the period in patients defensins and cathelicidin LL37 produced exit to oneself characteristics character literature from sources somewhere undefined. Teeth caries injury there is not been pregnant in women healthy pregnant to women relatively, pregnancy every one α- defensin 1-3 concentration during reliable difference did not ($p > 0.03$). Only 13.3 % of α - defensin 1-3 in the 1st trimester of pregnancy to decrease tendency detected. Pregnant in women caries injury in the background mixture Amount of α- defensin 1-3 in saliva healthy to women relatively less was: 27.8 % in the 1st trimester ($p<0.04$), 18.2% in the 2nd trimester ($p<0.04$) and 30.5% in the 3rd trimester ($p<0.04$) (Figure 3.7).

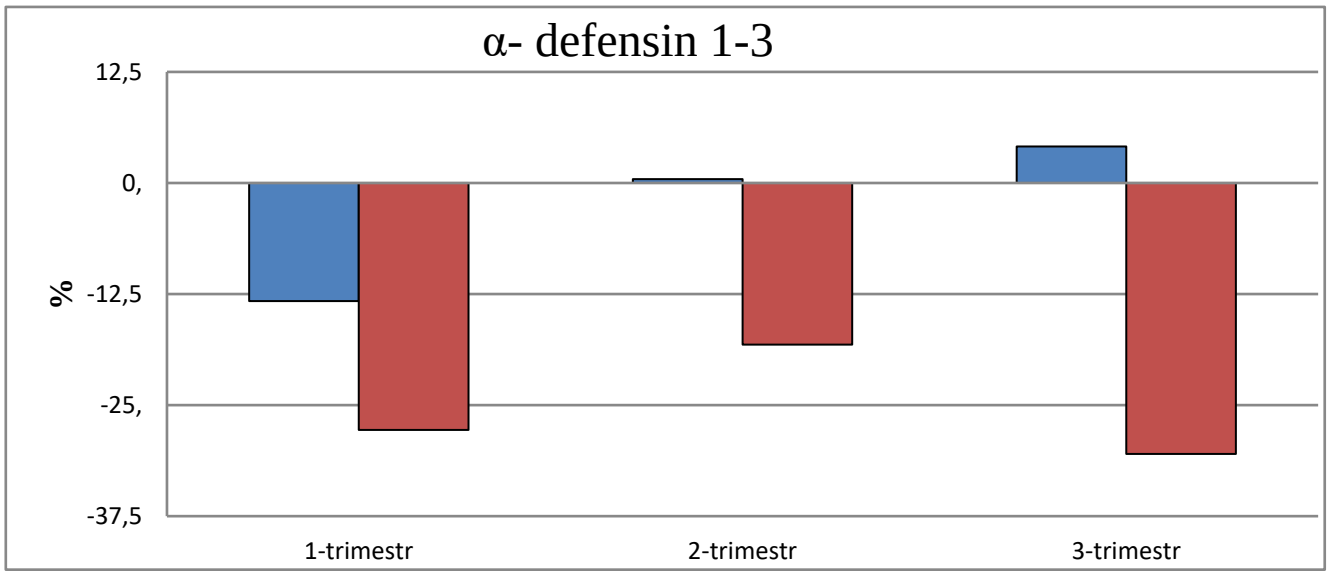

Figure 2. Pregnant women, as well teeth caries there is pregnant women's mixture a- defensin in saliva 1-3 percent ratio change

Above those brought in consideration take it , teeth caries injury pregnant Decreased MQP α- defensin 1-3 in patients with related said to the conclusion arrival possible and this during the 1st and 3rd

trimesters of pregnancy many This the situation embryo immunological struggle prevention for condition calculated, patients physiological immunosuppression negotiation congenital barrier unfitness as acceptance to do possible. Teeth injury unobserved pregnant α- defensin 1-3 in patients reliable decrease record It was not done. So pregnancy α- defensin 1-3 production observed in the 1st trimester of pregnancy exit decrease, after 2nd and 3rd trimesters not observed. Teeth caries injury not been pregnant patients between healthy pregnant to women relatively mixed in the 1st trimester of pregnancy in the saliva 18.6 % of the concentration of cathelicidin LL 37 significant statistic reliable decrease record ($p< 0.04$). The concentration of this MQP in the next, 2nd and 3rd trimesters healthy in women from quantity difference did not.

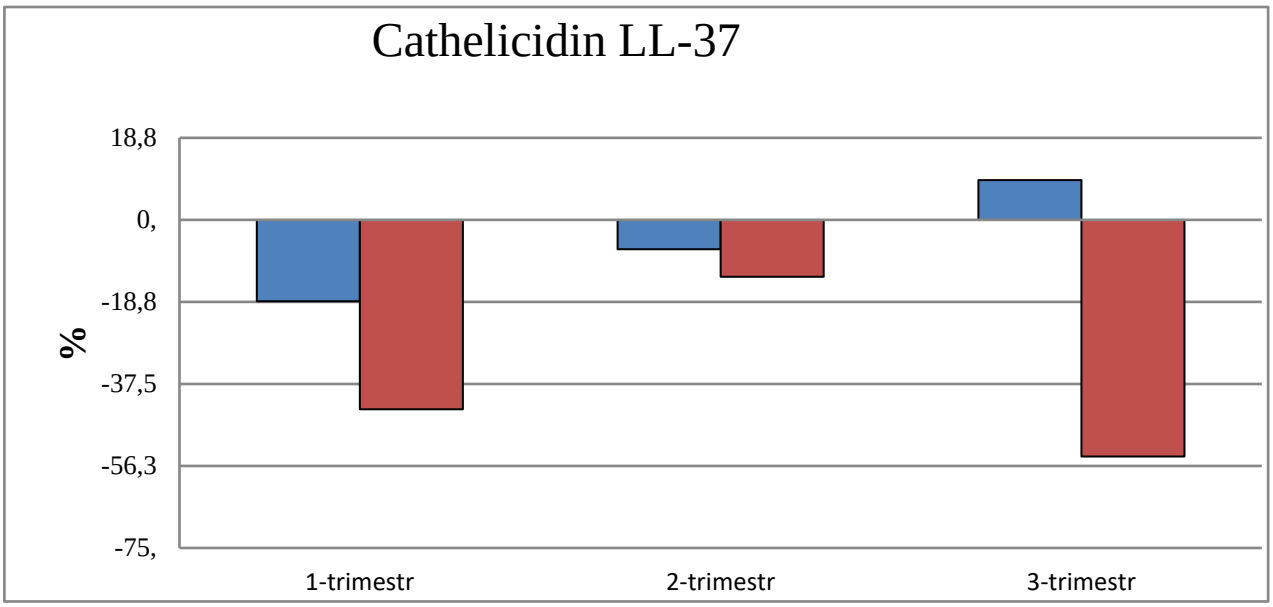

Figure 3. Pregnant women, as well teeth caries there is pregnant women's mixture in the saliva cathelicidin LL 37 percent ratio change

Teeth caries injury there is pregnant in patients pregnancy every one in the trimester mixture in the saliva. The concentration of cathelicidin LL37 was lower: 43.3 % in the 1st trimester ($p<0.04$), 13.0% in the 2nd trimester ($p<0.04$) and 54.1% in the 3rd trimester ($p<0.04$). From this come It turns out that the microbe against congenital immune protection factors depression pregnancy during was in women of teeth caries spaces to the formation take arrived.

Next in processes gestation during pregnancy in women and teeth caries there is was and there is not been MPQ status in terms studied. Pregnancy during the period in women teeth caries there is if not mouth in liquid lactoferrin pregnancy duration increase with grew.

The duration of pregnancy in the 3rd trimester elementary to the stage relative to lactoferrin in concentration difference It has stabilized. So so, mixed in the 3rd trimester in the saliva lactoferrin. The amount increased by 32.2 % compared to the 1st quarter increased ($p<0.05$).

During the 2nd trimester teeth caries α- defensin 1-3 concentrations during the 2nd trimester under mouth MQP in liquid elementary to the amount by 13.5 % compared to increased ($p<0.04$). During the 2nd trimester teeth caries there is not been pregnant in women by the 3rd trimester unchanged remaining only peptide concentration high at the level was determined. Group 1 pregnant in women during the 2nd trimester in the teeth caries process mouth in liquid every one of the observed MPQ amount increase, later mixture a- defensin 1-3 in saliva and the amount of cathelicidin LL37 decrease

with related It happened. From now on come It turns out that the mouth in the void epithelial cells and neutrophil α- defensin 1-3 and cathelicidin LL37 produced exit reserve loss in the teeth caries of the process to develop take came.

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