

Acute phase protein : Pregnancy periodontitis

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Citation

B Rai. *Acute phase protein : Pregnancy periodontitis*. The Internet Journal of Laboratory Medicine. 2008 Volume 3 Number 2.

Abstract

Dear Sir

Periodontitis has been associated with increased risk of adverse pregnancy outcomes and elevated C-reactive protein (CRP) concentrations in non-pregnant adults. It has been long established that immune mediators originating from a site of infection or from a site of severe trauma may activate hepatocytes in liver to produce large quantities of acute-phase proteins. ¹ The acute-phase reactants pass a wide-variety of functions. These include proinflammatory properties, activation of complement factors, neutralization of invasive pathogens, stimulation of repair, and regeneration of a variety of tissues. These acute-phase reactants receiving the most attention are C-reactive protein, serum amyloid P component, serum amyloid A protein, and ?-1-acid glycoproteins (AGP). Historically, CRP levels > 10mg/l has been regarded as diagnostic for a bacterial infection, while values < 10mg/l have been ignored. ² CRP has been associated with adverse pregnancy outcomes, including preclampsia, intrauterine growth restriction, and pre-term delivery. Elevated immunoglobulin G induced by bacterial associated with destructive periodontal disease is associated with increase in CRP. ³

20 (pregnant women) with periodontitis, 11 pregnant women without periodontitis, 12 non-pregnant women with periodontitis and 10 non-pregnant without periodontitis (20-40 years) were selected for the study.

Eligibility criteria for pregnant women included singleton pregnancy. The subjects having a history of smoking, alcoholic, congenital heart disease, requiring prophylactic antibiotics, diabetes, current use of corticosteroids chronic renal disease, and with the presence of fetal congenital abnormality were excluded. Periodontal parameters including pocket depth, clinical attachment loss, bleeding on probing were investigated. Pocket depth from gingival margin to the pocket base, were measured and recorded in

millimeter for all teeth except the third molars, at six points using a William probe. Bleeding on probing was evaluated as positive if bleeding was observed within 3 second after pocket depth measurement, otherwise bleeding on probing was considered as negative. Subjects, having 5 or more than 5 teeth, with at least two site with pocket depth of 5 mm or more and clinical attachment loss of 5 mm or more were diagnosed with periodontal disease. In all these cases, the peripheral blood drawn before starting any treatment. Plasma was separated after centrifugation of 1500 g for 10 min and stored at -4°C until analysis of C-reactive protein. CRP was analyzed by a immunoassay (using two monoclonal antibodies with sensitivity 0.3 mg/l at medix dicor). All the statistical analysis were performed using SPSS (version 11.0) and student t test was applied and P< 0.05 was taken as highly significant. In pregnant women with periodontitis and without periodontitis, non pregnant women with periodontitis and without periodontitis patients showed significant difference in periodontal profile (Table I, p <0.05). The significantly higher CRP levels were observed in pregnant women with in periodontitis as compared to other groups (Table I)

Figure 1

Parameters	Pregnant women with Periodontitis	Pregnant women without periodontitis	Non-pregnant women with periodontitis	Non-pregnant without periodontitis
mean age (years)*	21.3 ± 3.4*	21.1 ± 4.2	21.5 ± 4.1	21.7 ± 3.2
BMI(Kg/m ²)*	23.1 ± 3.2	22.1 ± 2.3	21.2 ± 4.3	21.1 ± 3.2
Mean probing Depth (mm)	5.7 ± 0.6	2.1 ± 0.8	5.2 ± 0.7	1.8 ± 1.2
Mean attachment level (mm)	5.3 ± 1.2	1.6 ± 1.3	5.1 ± 1.1	1.5 ± 1.3
CRP (mg/l)	2.3 ± 0.9	1.8 ± 0.8	1.6 ± 0.9	0.9 ± 0.8

P<0.05 at all level

* P NS

An association between CRP and periodontitis was observed

in pregnancy. Elevated level of CRP may indeed be caused or aggravated by periodontal infection. The increased CRP levels in pregnancy may mediate the association of periodontitis with adverse pregnancy outcomes.

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