

GINGIVAL CREVICULAR FLUID INTERLEUKIN-8 IN PREGNANT WOMEN: CORRELATION WITH PROGESTERONE LEVEL

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ABSTRACT

The gingivitis associated with pregnancy has been attributed to increased concentrations of circulating estrogen and/or progesterone. However, the mechanism by which these hormones increase gingival inflammation is not known. IL-8 is a potent chemoattractant for PMNL, which constitute the first and most abundant cell population in early inflammatory lesions. This study was conducted on 30 pregnant females (10 in each trimester) and 10 controls to assess their GCF IL-8 concentration and to find a relationship, if possible, with clinical periodontal variables in pregnancy. The concentration of GCF IL-8 has decreased throughout pregnancy in comparison to controls. GCF IL-8 concentrations revealed significant negative correlations with PBI, CLA, and serum progesterone level. No significant correlations were found as regards serum IL-8 level, denoting much more importance of the local host response to bacterial challenge. The decrease in GCF IL-8 level may be part of maternal immunosuppression associated with increased progesterone during pregnancy, and may modulate the development of localized inflammation.

INTRODUCTION

Pregnancy gingivitis is an accentuation of gingival response to local irritants, and may be attributed to factors other than plaque.⁽¹⁾ A variety of factors have been suggested such as alterations in the composition of the subgingival plaque,⁽²⁾ the physiological changes in serum concentrations of female sex hormones,⁽³⁾ and maternal immunosuppression developed during pregnancy.⁽⁴⁾

During pregnancy, increased levels of estrogen and progesterone may cause depression of maternal T lymphocyte response, disruption of gingival mast cells releasing their contents of histamine and proteolytic enzymes, and decreased lysosomal reactivity resulting in decreased neutrophil phagocytosis and response to chemotactic stim-

uli.⁽⁵⁾ Lindhe et al (1969)⁽⁶⁾ claimed that estrogen or progesterone induced microvascular changes in tissues, including dilation, increased permeability, and capillary proliferation, and concluded that hormones may act on the local tissue and its microvascular system to lower the threshold level of tissue injury to noxious stimuli. Moreover, the effect of progesterone could be stimulatory to prostaglandin synthesis in the gingivae of pregnant women; hence, illustrating a mechanism whereby raised progesterone levels in pregnancy magnify the clinical features of plaque induced gingivitis.⁽⁷⁾

The local host response in periodontal disease can be studied by biochemical analysis of gingival crevicular fluid (GCF). Many host inflammatory and immunologic mediators have been identified in GCF. Recently, there has been interest in the role

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