Serum placental growth factor, vascular endothelial growth factor, soluble vascular endothelial growth factor receptor-1 and -2 levels in periodontal disease, and adverse pregnancy outcomes. Sert T, Kirzioglu FY, Fentooglu O, Aylak F, Mungan T. Source Department of Periodontology, Faculty of Dentistry, Suleyman Demirel University, Isparta, Turkey.

Abstract

BACKGROUND:

The aim of this study is the evaluation of levels of serum interleukin (IL)-1β, IL-6, IL-10, tumor necrosis factor (TNF)-α, vascular endothelial growth factor (VEGF), placental growth factor (PIGF), and soluble VEGF receptor (sVEGFR)-1 and -2 in the association between periodontal disease and adverse pregnancy outcomes.

METHODS:

One hundred and nine mothers, who recently gave birth, and 51 women who were not recently pregnant, aged 18 to 35 years, were included in this study. The mothers were classified as term birth, preterm birth (PTB), and preterm low birth weight (PLBW) in respect to their gestational age and baby’s birth weight. The birth mothers were grouped as having gingivitis or periodontitis. The non-pregnant group also included periodontally healthy patients. Venous blood samples were collected to evaluate serum IL-1β, IL-6, IL-10, TNF-α, VEGF, PIGF, and sVEGFR-1 and -2 levels.

RESULTS:

Mother's weight, education, and income level were significantly associated with pregnancy outcomes. Serum levels of IL-1β, TNF-α, IL-6, VEGF, and sVEGFR-1 and -2 showed an increase in significance when related to pregnancy. Whereas in the PLBW group IL-1β, VEGF, and sVEGFR-2 levels were increased, in the PTB group sVEGFR-1 levels were increased. Additionally, the patients in the PLBW group with periodontitis had higher serum levels of IL-1β, VEGF, sVEGFR-2, and IL-1β/IL-10.

CONCLUSION:

The serum levels of IL-1β, VEGF, and sVEGFR-1 and -2 may have a potential effect on the mechanism of the association between periodontal disease and adverse pregnancy outcomes.

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