

# Gingival Bleeding Tendency in Liver Transplant Recipients Administered

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## Abstract

**Background:** Variety of drugs has been found to produce gingival overgrowth and gingival bleeding; in patients receiving them. Tacrolimus (TAC/FK506) is structurally different from Cyclosporine A (CsA), but has a similar ability to inhibit the rejection of transplanted organs. Vascular endothelial growth factor (VEGF) and Platelet derived growth factor (PDGF-B) are two of the most important proangiogenic factors over expressed in many human tissue disorders. Elevated levels of these cytokines are correlated with worth clinical outcomes observed in many cases of solid tumors, gingival bleeding and gingival overgrowth. **Objective:** The purpose of the present study was to assess the amount of VEGF and PDGF-B expression in gingival connective tissues and its correlation clinically to increased gingival bleeding tendency in liver transplant patients receiving CsA or Tacrolimus therapy.

**Methodology:** A total of 15 patients were included in the present study. Ten Liver transplant recipients were at least 6 months post-transplant and medicated with TAC (Group I) (n=5 individuals), and with CsA (Group II) (n=5 individuals). Five subjects served as healthy controls (Group III). Gingival samples were obtained from all groups and tissue sections were stained with haematoxylin eosin to under go histopathological examination by light microscope. Another section from the same gingival specimens was examined by immunohistochemical staining using VEGF and PDGF-B antibodies.

**Results:** No significant difference was found between group I and III in terms of plaque index, gingival index or gingival bleeding index scores. A similar range of gingival overgrowth assessment scores were recorded for both groups.

Histopathological examination of gingival sections in group II showed marked hyperplasia of lining mucosa, elongated gingival papillae, pronounced focal erosion, and Lamina propria showed marked mononuclear cellular infiltration, vascular proliferation and fibrosis. Meanwhile group I showed mild gingival thickening with mild papillary elongation and no vascular proliferation was observed. VEGF and PDGF-B immunostaining results showed the least immunoreactivity in control group (Gp III). Moderate expression was observed in (Gp I). While strong expression of both growth factors was observed in (Gp II). **Conclusion:** This study demonstrates a decrease expression of VEGF and PDGF-B in TAC treated group, which is associated with almost absence of gingival bleeding tendency as adverse side effect when compared to CsA and thus it may have potential as an alternative immunosuppressant for individuals susceptible to spontaneous gingival bleeding tendency, most notably with CsA therapy.

**Key words:** Gingival bleeding; immunosuppressive drugs; liver transplantation.

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