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Human inflamed periradicular tissues as a source of proangiogenic growth factors essential in repair and bone regeneration processes

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Introduction: The human dental pulp and periradicular tissues are considered to be a reservoir of the cells and cytokines of a great importance on a pathway of regenerative processes in the human body. The inflamed tissues surrounding the tooth enhance the expression of the various growth factors which promote angiogenesis. Basic fibroblast growth factor (bFGF) as well as vascular endothelial growth factor (VEGF) stimulate endothelial cell proliferation and angiogenesis *in vivo*. They have also been found to induce a significant periodontal tissue regeneration and bone healing, what is considered clinically relevant.

Aim: The purpose of this study was to investigate the levels of endogenic bFGF and VEGF in the persistently inflamed periapical lesions of endodontic origin.

Methodology: Specimens of the irreversibly inflamed tissue of periapical granuloma collected from healthy patients aged 27-62 were prepared for the study. Concentration of bFGF (11 samples) and VEGF (8 samples) with the ELISAKit RayBiotech Inc., were investigated. The absorbance was measured at a wavelength $\lambda=450$ using an Elx800 Elisa Reader (BIO-TEK). All the results were statistically verified with software StatSoft Statistic 8.0 PL using t-test (significance level set as $p<0.05$) and Shapiro-Wilk test (significance level set as $p>0.05$).

Results: Variables for bFGF and VEGF in periapical lesions gained levels of 178.16 $\mu\text{g/ml}$ (± 52.79) and 1841.26 pg/ml (± 589.65), respectively.

Conclusions: Presented values confirmed bFGF as well as VEGF appearance in the inflamed chronic periapical granulomas, what demonstrate angiogenesis. Nevertheless, more research is needed to fully explain pathways of repair processes in dental tissues.

Biography

Aleksandra Palatyńska-Ulatowska has completed her PhD in Medical Sciences and has gained her specialty training certificate in Conservative Dentistry and Endodontics. She is the acting Head of the Department of Endodontics, where she works as a Research and Didactic Worker. As an Assistant Professor with teaching experience since 1999, she served as a Dental Faculty Coordinator for Studies in English. She is an author of published articles in this field. She is an active member of Polish Endodontic Association, European Society of Endodontology (Country Representative) and local branch of Polish Dental Society (member of management and Audit Commission). Since 2002, she has been running her private dental practice.

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