

Exploring regulation of neurotrophic factor pathways in irreversible pulpitis

Syed Masood ul Hasan

Private Practice, Pakistan

Copyright: 2021 Masood ul Hasan S. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Biography:

Syed Masood ul Hasan specializes in Endodontics and Orthodontics and working in a private practice. .

Abstract

Irreversible Pulpitis is characterized by the inflammation of the dental pulp. It is manifested as spontaneous and lingering pain in teeth that does not subside even after removal of the evoking stimulus. It accounts for 19.4 % of total dental diseases in Karachi. The investigation aims to explore and compare expression of genes involved in NGF and BDNF pathways in healthy and irreversibly inflamed dental pulp samples. Briefly, 40 subjects were recruited for each of the two groups, namely control (healthy/normal) and test (subjects with irreversible pulpitis). Pulp was extirpated from the teeth and preserved as per standard protocols. All tissue samples were subjected to histological and immune histochemical examination for the expression of NGF, BDNF, NT-4/5, TrkA, TrkB, Nedd4-2 and USP-36 genes. Signals for expression were quantified under three thresholds that are high positive, positive and low positive using IHC profiler module integrated with Image J software. Depending on the data, statistical analysis was done by Graph Pad Prism. Statistically significant differences were found in vessel diameters (p-value 0.0072) and nuclear diameters (p-value 0.0099) when compared between test and control groups. Where, drops were noticed in both histologic parameters in irreversible pulpitis compared to control. Several assessed genes including: NGF, BDNF, NT-4/5, Nedd4-2 and USP-36 genes were found over expressed in test compared to control group. In addition, positive correlations were found between expression of NGF with BDNF (p-value <0.0001), Nedd4-2 (p-value 0.0003) and USP36 (p-value <0.0001) and BDNF with NT-4/5 (p-value 0.0001), Nedd4-2 (p-value <0.0001). In total, our findings are the first to provide a more resolved and composite picture of the molecular interplay of Nerve Growth Factor that underpins irreversible pulpitis.

Citation: Syed Masood ul Hasan; Exploring regulation of neurotrophic factor pathways in irreversible pulpitis; Dental Webinar 2021; April 22, 2021