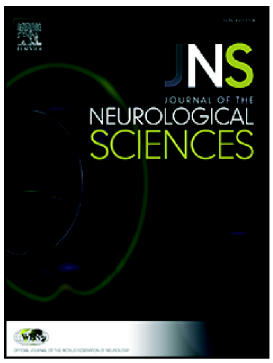

Ischemic optic neuropathy as a model of neurodegenerative disorder: A review of pathogenic mechanism of axonal degeneration and the role of neuroprotection

Saba Khalilpour, Shahrzad Latifi, Ghazaleh Behnammanesh, Amin Malik Shah Abdul Majid, Aman Shah Abdul Majid, Ali Tamayol

PII: S0022-510X(16)30837-1
DOI: doi: 10.1016/j.jns.2016.12.044
Reference: JNS 15036

To appear in: *Journal of the Neurological Sciences*

Received date: 29 June 2016
Revised date: 20 December 2016
Accepted date: 22 December 2016

Please cite this article as: Saba Khalilpour, Shahrzad Latifi, Ghazaleh Behnammanesh, Amin Malik Shah Abdul Majid, Aman Shah Abdul Majid, Ali Tamayol , Ischemic optic neuropathy as a model of neurodegenerative disorder: A review of pathogenic mechanism of axonal degeneration and the role of neuroprotection. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Jns(2016), doi: 10.1016/j.jns.2016.12.044

Ischemic optic neuropathy as a model of neurodegenerative disorder: A review of pathogenic mechanism of axonal degeneration and the role of neuroprotection

Saba Khalilpour[a], Shahrzad Latifi[b], Ghazaleh Behnammanesh[c], Amin Malik Shah Abdul Majid[d], Aman Shah Abdul Majid[e], Ali Tamayol[f,g,*]

[a]Department of Pharmacological and Biomolecular Sciences, University of Milan, Via Balzaretti 9, 20133 Milan, Italy

[b]Department of Neurology, David Geffen School of Medicine, University of California Los Angeles, Los Angeles, California, USA

[c] Department of Medical Pharmacology and Physiology, University of Missouri, USA

[d]Department of Pharmacology, School of Pharmaceutical Sciences, University of Science Malaysia, Penang, Malaysia

[e]Department of Pharmacology, Quest International University, Perak, Malaysia

[f]Biomaterials Innovation Research Center, Division of Biomedical Engineering, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston 02139, MA, USA

[g]Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston 02115, MA, USA

Abstract

Optic neuropathy is a neurodegenerative disease which involves optic nerve injury. It is caused by acute or intermittent insults leading to visual dysfunction. Deterioration and loss of visual function characterize optic neuropathy. There are number of factors, responsible for optic neuropathy, and the optic nerve axon is affected in all type which causes the loss of retinal ganglion cells. In this review we will highlight the pathogenic mechanisms associated with the cell loss cascades occurred during axonal degeneration and ischemic optic neuropathy. Mechanisms such as oxidative stress, excitotoxicity, angiogenesis, neuroinflammation and apoptosis following retinal ischemia, will be investigated. We will