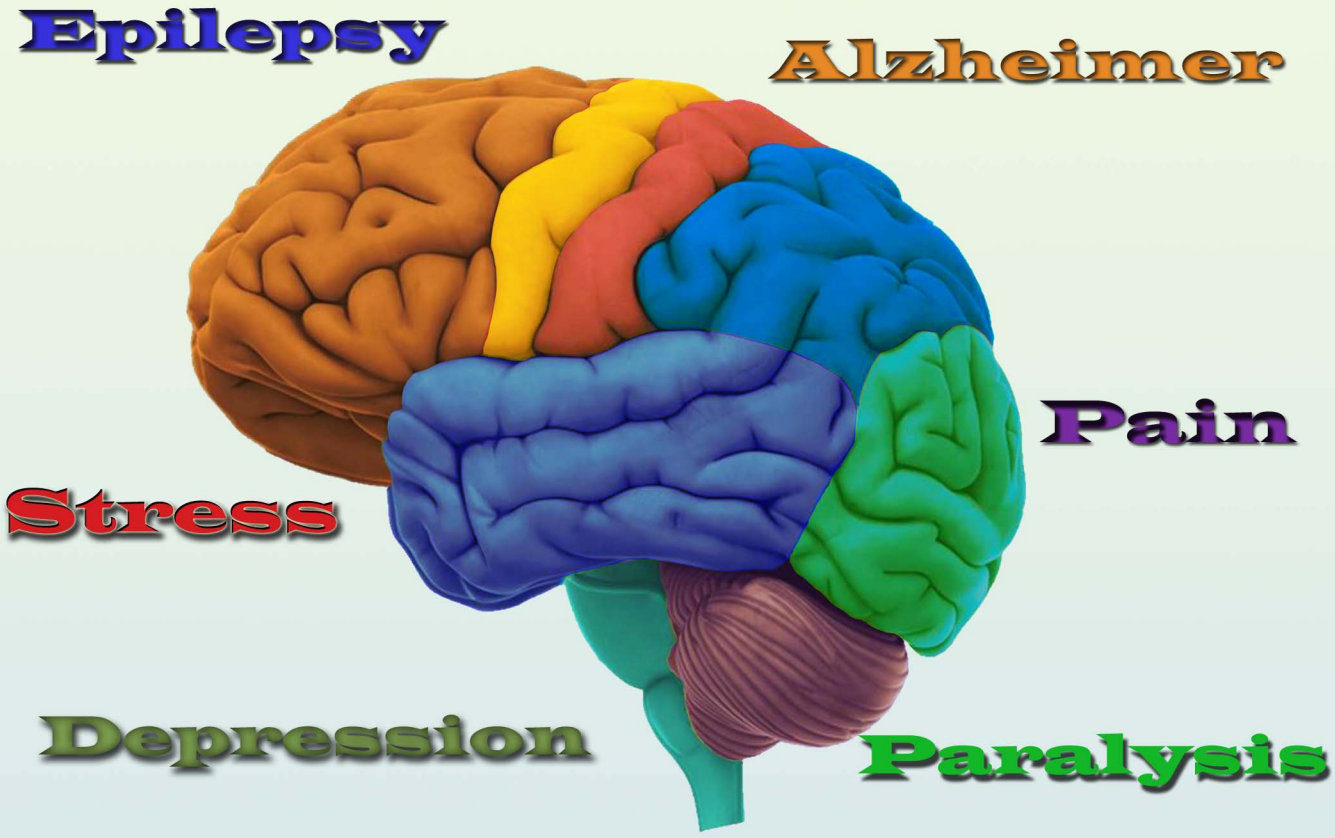
E-ISSN: 2149-7222 (Online)

Journal Cellular Neuroscience and Oxidative Stress

http://dergipark.gov.tr/jcnos

Former name; Cell Membranes and Free Radical Research



Brain Research School

OPEN ACCESS and NO PUBLICATION FEE

Supp 1 Volume, 2019

4th International Brain Research School

24-30 June 2019 Isparta /TURKEY

2019.brs.org.tr

Journal of Cellular Neuroscience and Oxidative Stress

http://dergipark.gov.tr/jcnos

BSN Health Analyses, Innovation, Consultancy, Organization, Industry and Trade Limited Company

http://www.bsnsaglik.com.tr/

info@bsnsaglik.com.tr

Formerly known as:

Cell Membranes and Free Radical Research (2008 - 2014)

Supp 1 Volume, 2019

Supp 1 Volume, 2019
E-ISSN Number: 2149-7222 (Online)
Indexing: Google Scholar, Index Copernicus, Chemical Abstracts, Scopus (Elsevier),
EBSCOhost Research Database, Citation Index Database,

AIM AND SCOPES
Journal of Cellular Neuroscience and Oxidative Stress is an online journal that publishes original research articles, reviews and short reviews on the molecular basis of biophysical, physiological and pharmacological processes that regulate cellular function, and the control or alteration of these processes by the action of receptors, neurotransmitters, second messengers, cation, anions, drugs or disease.

Areas of particular interest are four topics. They are;

A- Ion Channels (Na^+- K^+ Channels, Cl^- channels, Ca^{2+} channels, ADP-Ribose and metabolism of NAD^+, Patch-Clamp applications)

B- Oxidative Stress (Antioxidant vitamins, antioxidant enzymes, metabolism of nitric oxide, oxidative stress, biophysics, biochemistry and physiology of free oxygen radicals)

C- Interaction Between Oxidative Stress and Ion Channels in Neuroscience
(Effects of the oxidative stress on the activation of the voltage sensitive cation channels, effect of ADP-Ribose and NAD^+ on activation of the cation channels which are sensitive to voltage, effect of the oxidative stress on activation of the TRP channels in neurodegenerative diseases such Parkinson's and Alzheimer's diseases)

D- Gene and Oxidative Stress
(Gene abnormalities. Interaction between gene and free radicals. Gene anomalies and iron. Role of radiation and cancer on gene polymorphism)

READERSHIP

Biophysics	Biochemistry
Biology	Biomedical Engineering
Pharmacology	PhysiologyGenetics
Cardiology	Neurology
Oncology	Psychiatry
Neuroscience	Neuropharmacology

Keywords
Ion channels, cell biochemistry, biophysics, calcium signaling, cellular function, cellular physiology, metabolism, apoptosis, lipid peroxidation, nitric oxide, ageing, antioxidants, neuropathy, traumatic brain injury, pain, spinal cord injury, Alzheimer's Disease, Parkinson's Disease.

4th International Brain Research School

Abstract Book

of

4th International Brain Research School

24-30 June 2019

Isparta, Turkey

with collaboration of

BSN Health Analyses, Innovation, Consultancy, Organization, Industry and Trade Limited Company

& Neuroscience Research Center, Süleyman Demirel University

4th International Brain Research School

_____ [Organization Committee] _____

Organization Chairman
Prof. Dr. Mustafa NAZIROĞLU
Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey

Organization Vice Chairman
Assoc. Prof. Dr. Ömer ÇELİK
Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey

Organization Secretariat
Dr. Bilal ÇİĞ
Ahmi ÖZ & Ramazan ÇINAR
Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey

Accountant
Kenan YILDIZHAN &
Yener YAZĞAN *(Graphic Designer & Webmaster)*
Department of Biophysics, School of Medicine
Suleyman Demirel University, Isparta, Turkey

4th International Brain Research School

_____ [Scientific Committee] _____

4th International Brain Research School

_____ [Scientific Committee] _____

4th International Brain Research School

Oral Presentations

Oral Presentations

Oral Presentation 10

Chemotherapeutic agents increase mitochondrial oxidative stress and apoptosis in optic nerve

Dilek ÖZKAYA[1], Mustafa NAZIROĞLU[2]

[1]Department of Ophthalmology, Faculty of Medicine, Süleyman Demirel University, Isparta , Turkey
[2]Neuroscience Research Center, Suleyman Demirel University, Isparta, Turkey

Chemotherapeutic agents such as cisplatin and 5-fluorouracil are very effective and commonly used chemotherapeutic agents in treatment of several cancers including breast, testicular, ovarian and lung cancers. However, they have adverse effects and apoptosis in normal cells and neurons including optic nerve (Cardellicchio et al. 2014). Oxidative stress occurs during the several physiological functions such as mitochondria and phagocytosis. If the products of oxidative stress such as superoxide radical and hydrogen peroxide will be controlled by antioxidants the cell injury in normal tissue will not be occur. Results of recent reports indicated that optic nerve injury was induced through excessive production of reactive oxygen species (ROS) in rats by chemotherapeutic agents, although ROS were scavenged by antioxidants such as pycnogenol and rutin (Icel et al. 2018; Taşlı et al. 2018). It seems that the chemotherapeutic agents-induced excessive ROS production results in increased levels of lipid peroxidation as malondialdehyde and inflammation markers such as TNF-α and NF-κB levels, but decrease of glutathione and total antioxidant levels. Apoptosis in the optic nerve was induced in ARPE19 eye cells by activation of intrinsic apoptosis pathway and death receptor signaling (Güçlü et al. 2018). In the presentation, we discussed novel effects of oxidative stress and apoptosis on the optic nerve injury in rodents and human.

The results of current data suggest that oxidative stress has a main role in chemotherapeutic agents-induced optic nerve injury in rodents, although the injury was attenuated by the antioxidant treatment.

Keywords: Antioxidants; Apoptosis; Inflammation; Optic nerve injury; Oxidative stress.

References

Cardellicchio S, Bacci G, Farina S, Genitori L, Massimino M, de Martino M, Caputo R, Sardi I. 2014. Low-dose cisplatin-etoposide regimen for patients with optic pathway glioma: a report of four cases and literature review. Neuropediatrics 45(1):42-9.

Güçlü H, Doganlar ZB, Gürlü VP, Özal A, Dogan A, Turhan MA, Doganlar O. 2018. Effects of cisplatin-5-fluorouracil combination therapy on oxidative stress, DNA damage, mitochondrial apoptosis, and death receptor signalling in retinal pigment epithelium cells. Cutan Ocul Toxicol. 37(3):291-304.

Icel E, Uçak T, Agcayazi B, Karakurt Y, Yilmaz H, Keskin Çimen F, Süleyman H. 2018. Effects of Pycnogenol on cisplatin-induced optic nerve injury: an experimental study. Cutan Ocul Toxicol. 37(4):396-400.

Taşlı NG, Uçak T, Karakurt Y, Keskin Çimen F, Özbek Bilgin A, Kurt N, Süleyman H. 2018. The effects of rutin on cisplatin induced oxidative retinal and optic nerve injury: an experimental study. Cutan Ocul Toxicol. 37(3):252-257.