Keynote Forum

11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM
April 27, 2022 | Webinar

Received Date: 28 November, 2021 | Accepted Date: 02 December, 2021 | Published Date: 05 May, 2022

David Schultz

Nura Pain Clinics, USA

Patient satisfaction following intrathecal targeted drug delivery for benign chronic pain: Results of a single-center survey study

Targeted spinal drug delivery (TDD) is considered a last resort option for the management of patients with intractable chronic pain. Past studies have proven efficacy in pain relief, reduction in opioid use and cost-effectiveness in long-term pain management, however there are few studies investigating satisfaction amongst patients with chronic benign pain managed with targeted intrathecal medications using implanted pain pumps.

Our recent article titled *Patient Satisfaction Following Intrathecal Drug Delivery for Chronic Benign Pain: Results of a Single-Center Survey Study*, revealed remarkably high satisfaction with TDD in patients suffering from intractable, chronic, benign pain. Our study describes patient satisfaction with TDD in single medical practice for patients implanted with pain pumps for relief of chronic pain. Six hundred and ten active TDD patients were identified, and an anonymous 18-question survey was administered to determine satisfaction with TDD therapy. Four hundred and forty-three patients (74% of the active pump population) completed the survey. Most patients had a 40cc reservoir implanted in an upper buttock pocket site and overall, 91% of patients were happy with pump pocket location. 96% of patients reported significant benefit from TDD and over 85% reported improvement in quality of life. 94% reported improved pain relief and 60% reported good to excellent pain relief with TDD. 78% of respondents reported improved physical functioning after pump implant. 77% had not been to the hospital or ER at all since implant and another 15% reported seeking hospital care less often. Almost 90% of patients reported taking less systemic opioids after implant and nearly 40% had stopped systemic opioids completely. With regard to side effects, 93% of patients reported no or manageable side effects from TDD. In addition to our questions, we provided a free text box in the survey and asked respondents to supply any additional feedback in their own words. Although there were a few negative comments, the majority were very positive as per these examples:

"The pump literally saved my life."

"I can honestly say that I would not be alive without the pump."

"The pump is the best thing I ever did."

"Best thing I ever did for myself and my family."

Nonetheless, TDD continues to be a misunderstood and perhaps underutilized therapy. Most pain specialists consider TDD to be a last resort option and reserve it for the most complex and refractory pain problems, typically in patients with terminal cancer. Neurostimulation is a far more popular therapy for benign pain in the U.S. because it is considered less drastic and overall lower risk compared to continuous delivery of intrathecal medication. Unfortunately, some patients, especially those with nociceptive or mixed pain problems, will not experience pain relief with trial neurostimulation, and permanent neurostimulation implants have a significant failure rate over time with high rates of system removal. In view of the ongoing opioid crisis in the United States, we believe TDD offers a viable alternative to systemic opioids for the treatment of intractable chronic benign pain, providing better analgesia with fewer mental side effects. We conclude that intrathecal TDD therapy can relieve pain and improve quality of life in patients with intractable pain and offers a reasonable alternative to long-term oral or

skin patch opioid management.

Recent Publications

1. Safety of Interlaminar Cervical Epidural Injections: Experience With 12,168 Procedures in a Single Pain Clinic. David M Schultz, Jonathan M Hagedorn, Alaa Abd-Elsayed, Scott Stayner. Pain Physician. 2022 Jan;25(1):49-58.

2. Indented intrathecal drug delivery system with loss of reservoir volume.

3. Vasudha Goel, Amol M Patwardhan, Mohab Ibrahim, Hariharan Shankar, David M Schultz Reg Anesth Pain Med 2019 May 12; rapm-2019-100516. DOI: 10.1136/rapm 2019-100516

4. Complications associated with stellate ganglion nerve block: a systematic review. Vasudha Goel, Amol M Patwardhan, Mohab Ibrahim, Carol L Howe, David M Schultz, Hariharan Shankar. Reg Anesth Pain Med. 2019 Apr 16; rapm-2018-100127. DOI:10.1136/rapm-2018-100127

5. Increased pain catastrophizing associated with lower pain relief during spinal cord stimulation: results from a large post-market study. Jason C Rosenberg, David M Schultz, Luis E Duarte, Steven M Rosen, Adil Raza. Neuromodulation. 2015 Jun;18(4):277-84; discussion 284. DOI: 10.1111/ner.12287

6. Cardiovascular effects of spinal cord stimulation in hypertensive patients. David M Schultz, Xiaohong Zhou, Ashish Singal, Shailesh Musley. Pain Physician Jan-Feb 2011;14(1):1-14.

Biography

David Schultz is a board-certified Anaesthesiologist with additional board certifications in Pain management from the American Board of Anaesthesiology, the American Board of Interventional Pain Physicians (ABIPP) and the World Institute of Pain (FIPP). He is Adjunct Professor of Anaesthesiology at the University of Minnesota, Executive Director of the Minnesota Society of Interventional Pain Physicians, and a member of the U.S. Medicare Advisory Committee. He is former president of the American Society of Interventional Pain Physicians (ASIPP) where he recently received a Lifetime Achievement award. He lectures and teaches and is a primary investigator for research studies focused on pain management. He founded Nura Pain Clinics in 1995 where he currently works full time as an interventional pain specialist. He is specialized in spinal injections and implantable pain control and routinely trials, implants and manages patients with neurostimulation systems and intrathecal infusion pumps.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM
April 27, 2022 | Webinar

Received Date: 30 March, 2022 | Accepted Date: 04 April, 2022 | Published Date: 05 May, 2022

Caroline A. Sewry

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The role of Immunohistochemistry for evaluation of Muscle Biopsies

Evaluation of a muscle biopsies is an important part of the diagnostic pathway of a neuromuscular disorder, even though next generation sequencing is now more widely used. Muscle biopsy can contribute to the selection of appropriate gene panels, to the assessment of the pathogenicity of gene variants and identify specific pathological features when next generation sequencing has produced negative results. Immunohistochemistry is an essential tool for the assessment of a muscle biopsy, but the data must always be correlated with the clinical, biochemical, electrophysiological, imaging, histological and histochemical results. The localisation of antibodies by immunohistochemistry can identify specific protein abnormalities resulting from a primary defect in a gene, for example the absence of a particular sarcolemmal protein can often identify the form of muscular dystrophy. Studies of secondary abnormalities also have a role, such as the over-expression of a protein in response to a primary defect in a gene. In acquired, non-inherited neuromuscular disorders immunohistochemistry can identify several informative abnormalities that aid diagnosis, direct appropriate therapy and aid differential diagnosis. Immunohistochemical studies of antibodies to myosin heavy chain isoforms are now recognised as an important tool for the assessment of fibre types in both inherited and acquired muscle disorders, for assessing maturity of fibres and for determining if a muscle sample is normal or abnormal.

Recent Publications:

1. Importance of immunohistochemical evaluation of developmentally regulated myosin heavy chains in human muscle biopsies. Sewry CA, Feng L, Chambers D, Matthews E, Phadke R.Neuromuscul Disord. 2021 May;31(5):371-384.DOI: 10.1016/j.nmd.2021.02.007.

2. Nemaline myopathies: a current view. Sewry CA, Laitila JM, Wallgren-Pettersson C.J Muscle Res Cell Motil. 2019 Jun;40(2):111-126. doi: 10.1007/s10974-019-09519-9. Epub 2019 Jun 21.

Biography

Caroline Sewry has worked in the field of muscle pathology for over 50 years. She is a clinical scientist who did her first degree in Zoology and PhD in electron microscopy of muscle. She has worked closely with Professor Victor Dubowitz and Professor Francesco Muntoni, two of the leading paediatricians in the neuromuscular field. In 1998 she established a muscle biopsy service at the RJAH Orthopaedic Hospital, Oswestry where she continues to work part time and also works part time at Salford Royal Hospital, Manchester. She is co-author of the 3rd, 4th and 5th editions of 'Muscle Biopsy A Practical Approach' and the chapter on muscle disorders in the 8th and 9th edition of Greenfield's Neuropathology. She is co-editor of 'Muscle Disease Pathology and Genetics 2nd edition, an author of over 300 peer reviewed papers, as well as contributor to chapters in several textbooks on muscle disease.

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11th International Conference on Central Nervous System

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Scientific Tracks & Abstracts

Sessions

Neuroimmunology, Neurology, Clinical Neurology, Neurological Nursing, Dementia

Session Chair

Marina Komaroff | Nura Pain Clinics | USA

Neuropediatric, Neurodegenerative disorders, Psychiatry, Behavioural Sciences

Session Chair

Caroline A. Sewry | RJAH Orthopaedic Hospital | UK

Title: **Title: Angioplasty alone versus Acute Stenting for acute tandem occlusions due to internal carotid artery atherosclerotic**

Wei Li | Hainan Medical University | China

Title: **Title: The Aquaporin4-IgG status and how it affects the clinical features and treatment response in NMOSD patients in Egypt**

Amany Hussein Abolmagd Ahmed Ragab | Cairo University | Egypt

Title: **Title: Evaluation of the one-year effectiveness and side effects of Rituximab in patients with Multiple Sclerosis & Comparison of side effects of the first and second doses of Sinopharm vaccine in patients with Multiple Sclerosis in Kermanshah-Iran (2021)**

Nazanin Razazian | Imam Reza Hospital | Iran

Title: **Title: Investigation of common risk factors between Polycystic Ovary Syndrome and Alzheimer's disease: a narrative review**

Narges Eskandari Roozbahani | Imam Reza Hospital | Iran

11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 16 April, 2022 Accepted Date: 20 April, 2022 Published Date:05 May, 2022

Angioplasty alone versus Acute Stenting for acute tandem occlusions due to internal carotid artery atherosclerotic

Wei Li

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Various studies have demonstrated the benefit of endovascular treatment in patients with acute anterior tandem occlusions (TO). Consider for imminent reocclusion or recurrent embolization after successful mechanical thrombectomy, some interventionists advocate for acute extracranial ICA stenting. For that reason, others adopt to perform only balloon dilatation because of several potential concerns regarding technical complexity, hyperacute in-stent thrombosis, and the risk of symptomatic intracranial hemorrhage (ICH) owing to double antiplatelet regimen-especially in few severe cases with low ASPECTS scores and rtPA on board. At the same time, the etiology of internal carotid occlusion (some were atherosclerotic disease and other cases were arterial dissection) was heterogeneous in these retrospectives, observational cohort studies. Patients with cervical dissection must be managed differently from those with atherosclerotic disease.

Hence a multicenter, retrospective cohort study was performed, aiming to investigate the differences in effectiveness and safety between balloon angioplasty alone and acute stenting using propensity score matching (PSM) analysis in acute tandem occlusions (TO) owing to internal carotid artery atherosclerotic disease.

Recent Publication

1. Predictive value of the THRIVE score for outcome in patients with acute basilar artery occlusion treated with thrombectomy. Beilei Chen, Liu Yang, Jing Hang, Shoujiang You, Jun Li , Xiaobo Li, Liangzhu Wang, Li Jiang, Wei Li, Hailong Yu Brain Behav. 2019 Oct;9(10):e01418. doi: 10.1002/brb3.1418. Epub 2019 Sep 26.

2. Management of acute tandem occlusions: Stent-retriever thrombectomy with emergency stenting or angioplasty. Wei Li, Zhonglun Chen, Zheng Dai, Rui Liu, Qin Yin, Huaiming Wang, Yonggang Hao, Yunfei Han, Zhongming Qiu, Yunyun Xiong, Wen Sun, Wenjie Zi, Gelin Xu, Xinfeng Liu J Int Med Res. 2018 Jul;46(7):2578-2586. doi: 10.1177/0300060518765310. Epub 2018 May 4.

Biography

Wei Li was born on 28th February 1985 in China. He completed M.D and works as an Interventional Neurologist in the First Affiliated Hospital of Hainan Medical University, Haikou, China.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 27 March, 2022 | Accepted Date: 01 April, 2022 | Published Date: 05 May 2022

The Aquaporin4-IgG status and how it affects the clinical features and treatment response in NMOSD patients in Egypt

Amany Hussein Abolmagd Ahmed Ragab

Cairo University, Egypt

Background: In Egypt, the characterization of Neuromyelitis Optica Spectrum Complaint (NMOSD) is deficient.

Objectives: To estimate the demographics, clinical features, aquaporin4 antibodies (AQP4-IgG) status, and neuroimaging of Egyptian NMOSD patients.

Methods: Retrospective analysis of 70 NMOSD patients' records were attained from the MS clinic, Kasr Alainy clinic, during January 2013 and June 2018.

Results: Patients 'mean age was34.9 ±9.2 times, and the mean at complaint onset was28.9 ±10.5 times. Fifty-nine cases had an original monosymptomatic donation. AQP4-IgG was measured using either enzyme- linked immunosorbent assay (ELISA) (22 patients) or cell- grounded assay (CBA) (34 patients). Six and 29 patients had shown positive results, independently ($p < 0.001$). 84 had typical NMOSD brain lesions. Longitudinally expansive myelitis was detected in 49 patients, and 9 had either short parts or normal cords. Treatment failure was advanced in seropositive patients. Rituximab significantly reduced the annualized relapse rate (ARR) compared to Azathioprine with a chance reduction of (76.47 ±13.28) and (10.21 ±96.07), independently ($p = 0.04$). Age at complaint onset was the only independent predictor for disability ($p < 0.01$).

Conclusion: Treatment failure was massive in seropositive patients. Still, there was no difference in clinical or radiological parameters between seropositive and seronegative patients. Patients, who were polysymptomatic or with aged age of onset, were prognosticated to have advanced unborn disability anyhow of the AQP4-IgG status.

Recent Publications

1. Najib Kissani, Laila Liqali, Khaoula Hakimi, Jacob Mugumbate, Daniel Gams Massi, Eetedal Ahmed A. Ibrahim, Enat Yewnetu, Mofou Belo, Jo Wilmshurst, Pascal Mbelesso, Amany Hussein Ragab, Athanase Millogo, Leone Massimo. Why does Africa have the lowest number of Neurologists and how to cover the Gap?. December 2021. Journal of the Neurological Sciences 434(13):120119. DOI: 10.1016/j.jns.2021.120119.
2. Ragab AH, Kishk NA, Hassan A, et al. Changes in migraine characteristics over 30 days of Ramadan fasting: A prospective study. Headache. 2021;00:1-6. Doi: 10.1111/head.14231.
3. Kissani, N., El Khiat, A., Watila, M. M., El Aarroumi, I., Wahba, H. M., Emara, T. H., Eliashiv, D., Kissani, I., Gams Massi, D., Jabang, J. N., Ragab, A. H., & El Khiat, A. (2022). How New Technologies Could Help Improve Healthcare, Teaching, and Sensitization During Pandemics Like COVID-19. In K. Kahime, M. Zahir, M. Hadach, M. El Hidan, & B. Bougadir (Ed.), Public Health and Economic Resiliency in the Post-COVID-19 Era (pp. 86-104). IGI Global. DOI :10.4018/978-1-7998-8202-2.ch006

Biography

Amany Hussein Abolmagd Ahmed Ragab is a Lecturer in Neurology in Kasr al-Ainy hospital. She is a member of the American Academy of Neurology, MDS, Member of the Egyptian Society of Neurology, Psychiatry, and Neurosurgery and Member of the International Child Neurology Association (ICNA Pedia). She is a founding member of FND society. She serves as an Editor in Frontiers in Neurology and Neuroscience Research and as a Peer Reviewer at Publon Academy.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 04 April, 2022 | Accepted Date: 08 April, 2022 | Published Date: 05 May, 2022

Evaluation of the one-year effectiveness and side effects of *rituximab* in patients with multiple sclerosis

Nazanin Razazian[1], Poona Ahmadi[1], Mansour Rezaei[2], Negin Fakhri[3]

[1] Imam Reza Hospital, Iran
[2] Social Development and Health Promotion Research Center, Iran
[3] Student Research Committee, Iran

Multiple sclerosis (MS) is an inflammatory disease affecting the central nervous system and leading to neurological defects. Rituximab is a medication that is administered intravenously for treating MS. The present study examined the one-year effectiveness and side effects of rituximab.

Methodology & Theoretical Orientation: This quasi-experimental clinical trial was conducted in Kermanshah (2018-19). Patients were treated with rituximab for one year. At the beginning of the study, the EDSS (Expanded Disability Status Scale) score and active lesions based on Magnetic Resonance Imaging (MRI) for patients were evaluated. Also, the patients were followed up in terms of relapse and medication side effects in this year. At the end of the year, EDSS score and MRI were evaluated again. The data were analysed by SPSS-25 software.

Findings: 44 patients with MS including 29 (65.9%) female and 15 (34.1%) males were studied. 22 patients had RRMS and 22 patients had progressive-relapsing MS (PRMS). In RRMS patients, the EDSS score was significantly reduced (P = 0.010) but in PRMS patients EDSS was non-significantly increased (P = 0.148). In both RRMS and PRMS patients, the number of MRI lesions was lower than at the beginning of the study and this decrease was not significant (P> 0.05). More Immediate side effects occurred in RRMS patients (13.6% vs. 4.5%) and more delayed side effects were observed in PRMS patients (54.5% vs. 36.3%).

Conclusion & Significance: rituximab caused a greater reduction in EDSS in the treatment of RRMS than PRMS and its use had few side effects.

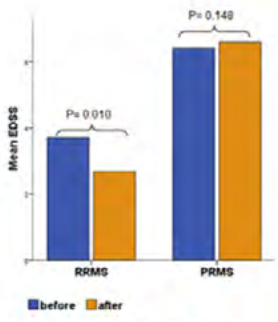

Figure1. Comparison of EDSS before and after treatment by type of MS

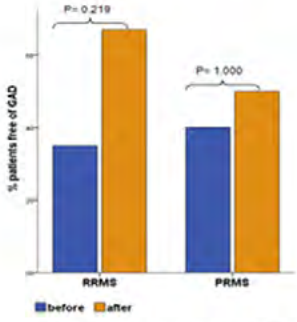

Figure2. Comparison of the proportion of patients without lesions on MRI before and after treatment by type of MS

Recent Publications

1. Prevalence of Multiple sclerosis and its clinical and demographic characteristics in Kurdish populations in western Iran (2020) N Razazian, S Eskandarieh, S Siabani, DAfshari, MA Sahraian, O Khezri, Multiple Sclerosis and Related Disorders.2022; 57, 103441
2. One-year Effectiveness and Side Effects of Fingolimod in Multiple Sclerosis Patients
3. N Razazian, P Ahmadi, M Rezaei, N Fakhri. Journal of Mazandaran University of Medical Sciences.2021; 31 (203), 173-179
4. The impact of physical exercise on the fatigue symptoms in patients with multiple sclerosis: a systematic review and meta-analysis. N Razazian, M Kazeminia, H Moayedi, A Daneshkhah, S Shohaimi. BMC neurology.2020; 20 (1), 1-11

Biography

Nazanin Razazian has conducted an MS registry in Imam Reza Hospital, a referral hospital in Kermanshah, west of Iran. To date, she has enrolled 1780 patients with MS. She has been involved in running a neurology residency program at Kermanshah University of Medical Sciences in 2008. She supervised more than 30 residents. She has experience in teaching medical students. Her publication record includes more than 50 papers, most of which are focused on the Pharmacological and Nonpharmacological treatment of Multiple Sclerosis. A part of her research involves using exercise as a nonpharmacological symptomatic treatment for MS patients. Her recent projects are focused on the complications of COVID-19 in MS patients. The other outstanding article is about cerebral vein thrombosis in the west of Iran. It discusses the association between a mutation in factor V Leiden and cerebral venous thrombosis in the Kurdish population.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 04 April, 2022 | Accepted Date: 08 April, 2022 | Published Date: 05 May, 2022

Comparison of side effects of the first and second doses of Sinopharm vaccine in patients with multiple sclerosis in Kermanshah-Iran (2021)

Nazanin Razazian[1], Mohammad-Ali Sahraian[2], Mansour Rezaei[3], Sharareh Eskandarieh[2], Kianoosh Khamooshian[1], Seyede-Elham Mousavi[1], Negin Fakhri[4]

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[4] Student Research Committee, Iran

The aim of this study was to comparison of side effects of first and second doses of the Sinopharm vaccine in on people with MS (PwMS). Methodology & Theoretical Orientation: In this follow-up study, among PwMS in Kermanshah province who received the Sinopharm vaccine, sampling was performed using the list of patients in the nationwide MS registry of Iran. Findings: Finally, 188 PwMS including 148 (78.7%) females and 40 (21.3%) males were studied. The mean (SD) age was 42.66 (11.1) years. The prevalence of side effects of the Sinopharm vaccine in the first dose was significantly higher than the second dose (58.5% vs. 47.0%) (P = 0.012). The most common side effects in the first dose were fatigue (30.1%), myalgia (29.8%), fever (25.0%), and headache (22.3%), and also in the second dose were fatigue (27.1%), headache (18.6%), myalgia (17.5%) and fever (14.9%). Vaccine side effects started 13.80 (22.2) hours after the first dose and 17.42 (24.6) hours after the second dose. Side effects in both doses resolved in less than 48 hours on average. In general, we can say that Side effects were significantly more prevalent in the first dose than in the second dose. Most side effects are moderate in severity and transient. Conclusion & Significance: The prevalence of side effects of the Sinopharm vaccine in the first dose was significantly higher than the second dose. Most side effects are moderate in severity and transient. A case of a major complication was observed.

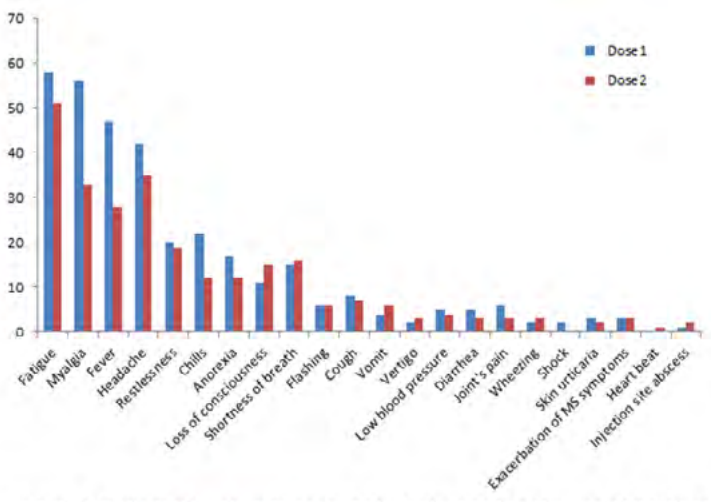

Figure1. Side effects of Sinopharm vaccine by the first and second dose of vaccine in MS patients

Recent Publications

1. Prevalence of Multiple sclerosis and its clinical and demographic characteristics in Kurdish populations in western Iran (2020) N Razazian, S Eskandarieh, S Siabani, DAfshari, MA Sahraian, O Khezri, Multiple Sclerosis and Related Disorders.2022; 57, 103441
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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 04 April, 2022 | Accepted Date: 08 April, 2022 | Published Date: 05 May, 2022

Common risk factors between polycystic ovary syndrome and alzheimer's disease

Narges Eskandari Roozbahani[1], Nahid Sarahian[2]

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Alzheimer's disease (AD) is the most prevalent progressive neurodegenerative disorder of the brain, and recent studies suggest a relationship between endocrinal dysregulation and neuronal loss during AD pathology. Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine and metabolic disorders in premenopausal women, characterized by hyperandrogenism, chronic anovulation, and/or ultrasound evidence of small ovarian cysts. Obesity and insulin resistance are also the vital factors influencing the clinical manifestations of this syndrome. Knowing the common risk factors for Alzheimer's and PCOS may eliminate them and prevent neurodegenerative Alzheimer's disease in the future. Neurosteroids and sex steroids have been suggested as one of the reasons for reducing the pathology of AD. Alzheimer's is more usual in women than men, and estrogen depletion is generally associated with an increased risk of AD. The age-related decrease in brain levels of testosterone in men and 17β-estradiol (E2) in women during menopause has been correlated with a greater risk of developing AD. As Alzheimer's patients have risk factors similar to those of PCOS, such as insulin resistance, vitamin D deficiency, sexual hormonal changes, inflammation, and sleep disorders, it may be hypothesized that PCOS may elevate the risk of Alzheimer's disease. In a study we summarized the possible pathways that may explain the association between Alzheimer's and PCOS. According to our research, the factors involved in Alzheimer's and PCOS disorders may share some common risk factors. In patients with PCOS, increased LH to FSH ratio, decreased vitamin D, insulin resistance, and obesity are some of the most crucial factors that may increase the risk of Alzheimer's disease.

Recent Publications

1. Sarahian N, Noroozzadeh M, Saei Ghare Naz M, Eskandari-Roozbahani N, Mahboobifard F, Ramezani Tehrani F. Is there any association between migraine headache and polycystic ovary syndrome (PCOS)? A review article. Molecular biology reports. 2021 Oct 15:1-9.
2. Taherianfard M, Riyahi M, Razavi M, Bavandi Z, Eskandari Roozbahani N, Namavari MM. The Cataleptic, Asymmetric, Analgesic, and Brain Biochemical Effects of Parkinson's Disease can be Affected By Toxoplasma Gondii Infection. BioMed Research International. 2020 May 5;2020.
3. Eskandari-Roozbahani N, Shomali T, Taherianfard M. Neuroprotective effect of Zataria Multiflora essential oil on rats with Alzheimer disease: A mechanistic study. Basic and Clinical Neuroscience. 2019 Jan;10(1):85.

Biography

Narges Eskandari Roozbahani was born on 2nd March 1981 in Kermanshah, Iran. She is working as a researcher in Clinical Research Development centre at Kermanshah University of Medical Science, Kermanshah, Iran. She completed her Ph.D. in Pharmacology under the supervision of Dr. Shomali on Effect of ZM Boiss essential oil in Alzheimer's Disease in Shiraz University in 2018. She completed her M.sc in Physiology with the project titled Effect of garlic extract on formalin pain under the supervision of Dr. Sajedianfard in 2013. Her research interests include Bioinformatics, Pharmacology, Metabolic disorder, Cancer, Herbal drugs, Toxicology and Alzheimer's Disease. She has published more than 20 research articles in the international journals in the areas of her interest.

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11th International Conference on Central Nervous System

April 27, 2022 | Webinar

Poster Presentation

11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 02 February, 2022 | Accepted Date: 06 March, 2022 | Published Date: 05 May, 2022

Factors associated with Cognitive fatigue in people with Multiple Sclerosis

Sorayya Askari
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Introduction: Fatigue, a disabling symptom of Multiple Sclerosis (MS), can manifest as physical, cognitive, and psychosocial fatigue. Cognitive Fatigue (CF), defined as declined performance during prolonged cognitive tasks, is often overlooked in literature. Knowledge of the factors associated with CF is inconclusive, limiting treatment options. A comprehensive review of the literature facilitates an understanding of what knowledge exists.

Objectives: This scoping review aims to identify the key correlates of CF in people living with MS.

Methods: Following Arksey and O'Malley's scoping review framework, four databases were searched in July 2021 using the keywords related to "multiple sclerosis" and "cognitive fatigue". Included studies reported on the relationship of CF with other factors, participants were adults with MS, and were published in peer-reviewed articles in English or French. All retrieved records were screened, and potentially relevant articles were fully reviewed for eligibility by two independent researchers.

Findings: Of the 1014 located records, 49 were included. Two categories emerged: neural correlates of CF and (2) MS-related or personal correlates of CF (n= 35). Depression (n=18) and sleep quality (n=8) were the most frequently assessed MS-related correlates of CF. Other correlates include quality of life, disease severity, disease duration, and age. The brain structures most associated with CF were the basal ganglia, prefrontal cortex region, frontal cortex, and thalamus volume.

Practice Implications: The findings of this study can build the foundation for developing specific interventions to manage CF in MS by identifying the main contributory factors.

Recent publications

1. Gobbi G, Atkin T, Zytynski T, Wang S, Askari S, Ware M, Dendukuri N, Mayo N. (2019). Association of Cannabis Use in Adolescence and Risk of Depression, Anxiety, and Suicidality in Young Adulthood: A Systematic Review and Meta-analysis. JAMA Psychiatry, 76(4):426–434. doi:10.1001/jamapsychiatry.2018.4500.
2. Askari S, Brouillette MJ, Fellows L, Moriello C, Duracinsky M, Mayo N. (2018). Development of an Item-Pool Reflecting Cognitive Concerns Expressed by People with HIV. American Journal of Occupational Therapy. 72(2). doi: 10.5014/ajot.2018.023945.
3. Grenier S, Payette M-C, Gunther B, Askari S, Desjardins F, Raymond B, Berbiche D. (2018). Association of age and gender with anxiety disorders in older adults: A systematic review and meta-analysis. The International Journal of Geriatric Psychiatry, 34(3):397-407. doi: 10.1002/gps.5035

Biography

Sorayya Askari, PhD, OT Reg (NS) is a registered Occupational Therapist and an Assistant Professor at the School of Occupational Therapy, Dalhousie University. Her research is in cognitive impairment among people with chronic disorders. She has been involved in nationally funded studies (CIHR and National MS Society) focused on the well-being of people living with chronic disorders (MS and HIV). She has a strong methodological background used in measurement development studies, review studies, quantitative, qualitative, and mixed-methods design studies. She has previously developed a self-report measure of cognitive abilities for people living with HIV, and has expertise on how to design, develop and validate a measure.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 30 March, 2022 | Accepted Date: 05 April, 2022 | Published Date: 05 May, 2022

Beneficial role of Capsaicin through modulation of Mitochondrial functions in MPTP-induced mice

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Background: Parkinson's disease, is a chronic central nervous system disease that affects movement, which is characterized by progressively degradation of nigrostriatal dopaminergic neuronal cells. Even though the molecular measures resulting in the loss of dopaminergic neurons in Parkinsonism remain deceptive, some facts proposes that mitochondrial impairment could show crucial triggering events.

Aim of the study: To explore the beneficial role of capsaicin in preventing MPTP induced neurodegeneration (Mitochondrial dysfunction) in Albino Wistar mice.

Methods: Various doses of capsaicin (5 mg/kg, 10mg/kg and, 20 mg/kg) was orally given to mice once a day for 4 to 5 days after MPTP administration. Behavioural Parameters was performed in the rodents by resting tremor score, muscle coordination in rotarod, locomotor index in Actophotometer, and hole board test. On the final day of treatment i.e., 7th day, additional behaviour parameters viz. hot plate test, tail-flick test, and tail suspension test were also done. Estimation of the lipid peroxidation content which measures as malondialdehyde (MDA), reduced glutathione (GSH), catalase, superoxide dismutase (SOD), cytokines levels, Mitochondrial complexes activity, Mitochondrial Permeability Transition, and total antioxidant capacity were performed in the blood plasma.

Result: Administration of capsaicin (5 mg/kg, 10mg/kg and 20 mg/kg) doses in mice alleviated MPTP-induced behavioural, neurochemical, and histological changes in a manner comparable to levodopa. MPTP injections also substantially increased mitochondrial complexes (I, II, III and IV) activity, Mitochondrial permeability transition (change in absorbance) as compared to the control group.

Conclusion: The observed neuroprotective effect of capsaicin makes it a promising candidate for further pre-clinical and standardized clinical studies which are needed to elucidate these effects or any other mechanism of action of Capsaicin suggesting its neuroprotective effect.

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Biography

Sakshi Tyagi currently working on "Neuropharmacological Studies of Capsaicin for the management co-morbid brain disorders" as her Ph.D. Project from Delhi Pharmaceutical Sciences and Research University with Senior Research Fellowship from ICMR, Govt. of India. Her research area mainly involves Mitochondrial Dysfunctioning and related Brain disorders. ORCID: 0000-0003-4533-7371

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 02 February, 2022 | Accepted Date: 06 February, 2022 | Published Date: 05 May, 2022

The synergy of Antiepileptic action of Rapamycin, Pioglitazone, and Minocycline on acute seizures in mice

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One-third of patients with epilepsy are resistant to antiepileptic drugs (AED). Combined treatment with neuromodulators with antiseizure action, which are not classical AED, is promising for searching for more effective antiepileptic therapy. The purpose of this study was to investigate the pronouncement and type of interaction of complex administration of rapamycin – blocker of mTOR, pioglitazone - agonist of PPAR-gamma, and minocycline hydrochloride – suppression of microglia upon acute seizures.

Methodology & Theoretical Orientation: the effectiveness of antiseizure action of neuromodulators administered in different dosages estimated as a number of mice prevented from generalized cloned-tonic fits induced with pentylenetetrazol (PTZ, 70.0 mg/kg, i.p.). Drugs were dissolved in DMSO and administered intraperitoneally daily for one week before testing with PTZ. Control rats were treated with DMSO. Data were analysed using the Synergy Finder web application (version 2.0) (https://synergyfinder.fimm.fi/synergy/). Results were estimated as synergy when summary Bliss synergy scores exceeded ten when applied to the most synergistic 3-by-3 dose window in a dose-response matrix. Less than -10: the interaction between two drugs is likely to be antagonistic; From -10 to 10: the interaction between two drugs is likely to be additive.

Findings: Bliss Synergy score was 19.0 and favoured the presence of the synergy between combined administration of investigated compounds (Fig.1). Pioglitazone combined with minocycline also demonstrated synergy (16.7), while rapamycin, pioglitazone, and rapamycin with minocycline interaction were characterized as an additive (9.7 and 4.7 score correspondently).

Conclusion & Significance: Combined treatment with rapamycin, pioglitazone, and minocycline caused synergetic preventive effects upon generalized cloned-tonic seizures induced with PTZ in mice. Gained data revealed the strengthening of seizure protective action of investigated compounds while the antagonistic interaction was absent.

Figure 1. Type of interaction of between rapamycin, pioglitazone and minocycline on the model of acute seizures caused with pentylenetetrazol in mice.

Recent publications

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3. Poshyvak OB, Pinyazhko OR, Godlevsky LS (2021) Axitinib displays antiseizure activity on pentylenetetrazol - Induced kindling model. Pharmacology online 1: 200-213.

Biography

Prybolovets is interested in Neuroscience, Epilepsy, Seizures. She has participated in main neuroscience conferences such as Neuronus, INS, World congress of Neurology as a main speaker and presenter of oral abstracts and poster presenter. Planning to become a Neurologist specialist, and participate in PhD programs in UAE, Dubai.

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11th International Conference on Central Nervous System

April 27, 2022 | Webinar

Accepted Abstracts

11th INTERNATIONAL CONFERENCE ON

CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 22 November, 2021 | Accepted Date: 26 November, 2021 | Published Date: 05 May, 2022

Patient-centered neurophysiological monitoring enhances the quality and safety of minimally invasive spinal surgery

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Minimally invasive spine surgery is having significant popularity. A distinguishing feature is they obscure the surgeon's view of the anatomy and the underlying neural structures at risk. This is particularly true of lateral procedures. Lateral procedures risks can be significantly minimized by quality patient-centered monitoring procedures.

Lateral procedures described in 1990's reported a greater than 30% neural complication rate. Given the complexity of anatomy in the lumbo sacrial plexis and the "hidden" anatomy transecting the psoas muscle, it is logical that this procedure results in increased complications. Addition of quality patient centered neuro-monitoring to assist in mapping the underlying anatomy and monitoring for avoidance of injury is recognized and essential. We report our retrospective review over Fifteen years with 1593 consecutive cases of extreme lateral interbody fusion using various manufacturer's hardware and seven different surgeons.

Our series included 2354 implants. All patients were monitored by credentialed neurophysiologists. While attractive to use a "surgeon directed" model, this approach places the important function of intraoperative monitoring squarely in the hands of, and the responsibility on, the operating surgeon whose attention is importantly focused on the surgical procedure. While surgeons are capable of quality monitoring, he/she's attention appropriately needs to be placed on the surgical procedure with neuromonitoring carried out by highly skilled neurophysiologists trained extensively with the surgeon for the specific procedures and necessary risk prevention methods to ultimately achieve a quality outcome.

Our series shows the overall incidence of perioperative neurological deficits beyond four weeks at only a 1.68%, significantly lower than other reported series. We believe comprehensive neuromonitoring, in the hands of experienced neurophysiologists, presents a greater likelihood of significantly lower post-operative deficits.

Recent publications

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 28 December, 2021 | Accepted Date: 02 December, 2021 | Published Date: 5 May, 2022

Early prevention of Hypoxemia can avert the Cytokine storm in COVID-19

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In COVID-19, an inflated pro-inflammatory response, known as cytokine storm (CS). The anti-inflammatory system's CS – intermediated response is an ineffective immunological control, leading to towel damage, multiorgan failure, acute respiratory torture pattern (ARDS), and death. Cytokine- intermediated lung endothelial and epithelial cell injury may damage the integrity of the blood – air hedge, promoting vascular permeability, alveolar edema, infiltration, and the presence of seditious cells, starving the blood of oxygen, causing hypoxemia. Hypoxemia triggers factors like HIF-1α, which regulates essential cellular processes, including cell proliferation, metabolism, and angiogenesis. HIF-1α is actuated during the vulnerable response and plays an necessary part at the inflammation point by converting pro-inflammatory cytokine product, eventually performing in CS. COVID-19 presents mildly in utmost cases. Short and slight ages of hypoxemia start indeed during the first incarnation of patient cough and/ or briefness of breath. Hence, the medical-scientific community desperately tries to find treatments to forestall CS. Hypoxemia is a decisive triggering factor for CS in COVID-19. CS generates fresh hypoxia in apkins and organs, leading to a chain response between hypoxemia and CS. Thus, a more straightforward treatment strategy is to give oxygen force as early as possible, when the first respiratory symptoms begin, to help ages of hypoxemia outside the ICU. We've suggested using CPAP. Other styles similar as Low or High- inflow nasal oxygen HFNO remedy would give the necessary oxygen at the lung alveoli to help gas exchange impairment, avoid hypoxemia, and thus, forestall CS.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 15 December, 2021 | Accepted Date: 19 December, 2021 | Published Date: 05 May, 2022

Role of mechanical thrombectomy in Sinus venous Thrombosis

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Cerebral venous sinus thrombosis (CVST) is a rather rare disease which accounts for <1% of all strokes. Diagnosis is still frequently overlooked or delayed because of the wide spectrum of clinical symptoms and the often subacute or lingering onset. Headache is the most frequent symptom of CVST and occurs in almost 90% of all cases. The headache may be of acute onset (thunderclap headache) and may be clinically indistinguishable from headache in patients with subarachnoid haemorrhage. Focal neurological signs (including focal seizures) are the most common finding in CVST. Heparin (unfractionated heparin or low-molecular-weight heparin) is the first-line treatment. Concomitant intracerebral hemorrhage related to CVST is not a contraindication to heparin therapy. Patient selection for thrombectomy is still not like in arterial Stroke. In CVST it depends on many factors like: Initial symptoms (for example coma, stupor) and if there is fast deterioration, length of the clots in CT/MRI, and heparin non-responder. Early endovascular treatment is better than delaying intervention. There are many techniques including: stent retrieval thrombectomy, aspiration, catheter mediated maceration, balloon dilatation and Angiojet. In this Abstract we want to focus on our experience in combining the different recanalization techniques in the few cases that we treated.

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11th INTERNATIONAL CONFERENCE ON
CENTRAL NERVOUS SYSTEM

April 27, 2022 | Webinar

Received Date: 15 February, 2022 | Accepted Date: 19 February, 2022 | Published Date: 05 May, 2022

Truncated α-synuclein 1-103 fragment promotes Parkinson's Disease-like pathology by inducing mitochondrial impairment

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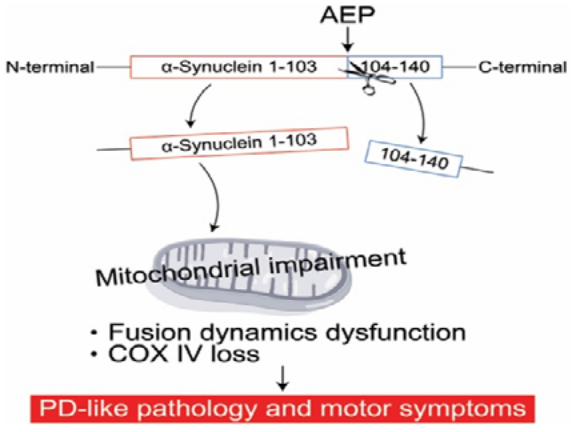
Statement of the Problem: Parkinson's disease (PD) is one of the most common neurodegenerative diseases. However, its pathological mechanisms still wrap in the mist. Previously we reported that the cysteine protease asparagine endopeptidase (AEP) cleaves α-synuclein, generating its 1-103 fragments, and promotes the onset of PD. However, the underlying molecular mechanisms of α-synuclein 1-103-induced PD pathology remain unclear.

Methodology & Theoretical Orientation: We established a transgenic mouse line expressing human α-synuclein 1-103. We investigated the progression of α-synuclein pathology, mitochondrial function, degeneration of the nigrostriatal pathway, and behavioral impairment of the mice. We also tested the effects of a small molecule TrkB agonist 7,8-DHF on rescuing α-synuclein 1-103-induced PD-like pathology.

Findings: α-Synuclein 1-103 overexpressing induces PD-like neurodegeneration, including synaptic degeneration and mitochondrial impairment. The α-synuclein 1-103 mice show age-dependent PD-like motor and non-motor symptoms. α-Synuclein 1-103 induces impairment of the TrkB signaling pathway, inducing mitochondrial impairments both in vitro and in vivo, which was attenuated by 7,8-DHF. Long-term oral administration of 7,8-DHF also ameliorated the pathological alterations and motor dysfunctions in α-synuclein 1-103 mice.

Conclusion & Significance: AEP-derived α-synuclein 1-103 promotes PD-like pathology and motor impairments by disturbing mitochondrial functions, which could be remitted by 7,8-DHF. Our results support a way of ameliorating PD by blocking mitochondrial dysfunction induced by pathological α-synuclein.



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