Research and Reviews Medical and Health Sciences ISSN: 2319-9865

# Emerging Trends in Neuropsychiatry

Kiran Mayee K*

Department of Pharmaceutical Analysis & Quality Assurance, Osmania University, Telangana, India

Review Article

Received: 16/12/2016
Revised: 26/12/2016
Accepted: 25/01/2017

***For Correspondence**

Kiran Mayee K, Department of Pharmaceutical Analysis & Quality Assurance, Osmania University, Telangana, India.

**E-mail:**
kondabathinilight@gmail.com

**Keywords:** Neuropsychiatry, Neurological disorders, Behavioral Neurology, Psychiatry literature

## ABSTRACT

Neuropsychiatry, the name indicates it is the subject of interest in Neurology & Psychiatry studies. Neuropsychiatry as a scientific field is the combined study of Psychiatry & neurological disorders. Neuropsychiatry is the subspecialty medical arena covering Behavioral Neurology & Neuropsychiatry. Behavioral Neurology & Neuropsychiatry requires experience specific to the evaluation, differential diagnosis, prognosis, pharmacological treatment, psychosocial management, and neurorehabilitation of persons with complex neuropsychiatric and neurobehavioral conditions. In, short Neuropsychiatry is the link between the mind, body and its behavior.

## INTRODUCTION

Neuropsychiatry and Behavioral Neurology are disciplines among the clinical neurosciences that emphasis on the clinical and pathological aspects of neural processes linked with cognition, emotion, and behavior. Recent developments in structural and functional brain imaging, clinical electrophysiology, and experimental psychology promoted exceptional growth in the clinical neurosciences, and have enlightened our understanding of both normal and disturbed cognition, emotion, and behavior.

These technologies and the outcomes from them complement the clinical interview and examination and outspread the core knowledge base and clinical skills that define modern neuropsychiatry and behavioral neurology. A principal goal of this integrative approach is to transcend the mind-brain duality reflected in the separation of psychiatry and neurology. People can gain awareness through literature, internet sources, family physicians and consultants. Open access journals provide more visibility and accessibility to the readers in gaining the required information. The ongoing researches all over the world, which are being exhibited through open access journals, serve as the main source of information in various fields [1-20].

In order to create awareness among the people, group of physicians and consultants unite to form a society or an organization. The main purpose of these societies is to counsel and build awareness among the victims of Brain disorders as well as healthy personnel. Major societies like The American Neuropsychiatric Association aims to improve the lives of people with disorders at the interface of psychiatry and neurology. International Neuropsychiatric Association (INA) aims to prevent or reduce the suffering of people with brain-behavior disorders by increasing, integrating, and disseminating knowledge and understand the relationships between brain function and human behavior. British NeuroPsychiatry Association (BNPA) highlights the advancement of health for the public benefit by bringing about improved health care for people with neuropsychiatric disorders in particular by increasing, integrating, and disseminating knowledge and understanding of the relationships between brain function and human behavior through open learned meetings. EEG and Clinical

Neuroscience Society (ECNS) with its primary goal to further the clinical practice of classic electroencephalography (EEG), quantitative EEG (QEEG), evoked potentials, magnetoencephalography (MEG), electroconvulsive therapy (ECT), transcranial magnetic stimulation (TMS), deep brain stimulation (DBS), polysomnography (sleep EEG), and EEG Neurofeedback from the professional, scientific, and economic standpoints [21-40].

Open Access literature plays a significant role in proving the information and modern researches across the globe. Neuropsychiatry (London) provides vital research on the advancements & clinical cases in the fields of Neurology & Psychiatry studies. Journal of Spine & Neurosurgery is an international peer-reviewed scholarly journal, which published the papers across the globe in the fields of Neurology & Neurotechnology all over its Volume till date.

Journal of Psychiatry covers the basic knowledge and provides cutting-edge research strategies in the development of updated psychiatry research. Journal of Psychology & Psychotherapy is a leading provider of information on Psychology studies and novel methods of treatment followed. The above mentioned Open access journals on cardiology are the peer-reviewed journals that maintain the quality and standard of the journal content, reviewer's agreement and respective editor's acceptance in order to publish an article [41-60]. These journals ensures the barrier-free distribution of its content through online open access and thus helps in improving the citations for authors and attaining good journal impact factors.

## MOST PREVALENT NEUROLOGICAL DISORDERS ACROSS THE GLOBE

The most common Neurological diseases include Depression, Mania, Schizophrenia, Visual & Auditory hallucination, Obsessive-compulsive disorder, Eating disorder, etc. Of these diseases mentioned, The U.S. is one of the most depressed countries in the world, according to the World Health Organization. India, China and the U.S. are also the countries most affected by anxiety, schizophrenia and bipolar disorder, according to WHO.

Depression is a state of low mood and aversion to activity or laziness that can affect a person's thoughts, behavior, feelings and sense of well-being [61-70]. Through Open access healthcare literature provides information of novel researches ongoing in the current era. Here is the list of few articles which provide reports that are competent enough for a person to attain knowledge on Neurological diseases. An article entitled The Relationship between depression and use of ecstasy among adolescents in Taiwan written by Cheng-Fang Yen of Taiwan, explains a case study of 10,262 adolescents aged 12-18 years completed research questionnaires that assessed their severity of depression, status of ecstasy use, and history of cannabis use. The participants were grouped into non-users, ex-users, and current users. Severity of depression among these three adolescent groups was compared using analysis of covariance (ANCOVA), considering the history of cannabis use and demographic characteristics as covariates.

Mania is a state of abnormally elevated arousal, affect, and energy level, or "a state of heightened overall activation with enhanced affective expression together with lability of affect. In a manuscript entitled Postpartum hypomania: future perspective authored by Jessica Heron of UK provides data regarding the Hypomanic symptoms.
Apart from the articles, presentation at conferences, symposiums, workshops also yield an improved exposure to health information and innovative technologies that are being invented in the present generation. 2nd International Conference on Sleep Disorders and Medicine popularly known as Sleep Medicine 2016, held at Atlanta, USA presented the De novo Advancements and Challenges of Sleep disorders, and Medical Conditions related to Advanced Sleep therapy. 6th Neurological Conference at San Antonio, USA focused on novel Advancements and Challenges in Neurosciences & Neurological Disorders. Ramel Carlos presented a report on "Vascular diseases in dementia and Parkinson disease in the Island of Guam". James Gratwicke displayed his research on "The development of brain stimulation therapies for dementia" [71-82].
Other Conferences in 2017 with more perspectives in neuroresearch are:
11th World Congress on Neurology and Therapeutics, 7th International Conference on Addictive Disorders and Alcoholism, 3rd International Conference on Neuro Infecticious Disorders, 18th Global Neurologists Annual Meeting on Neurology and Neurosurgery, etc.

## NOVEL TECHNOLOGIES IN NEUROLOGY

As the Brain diseases have become more prevalent, there are many scientific professionals are trained especially in detecting, treating and counseling the prevention of Neurological disorders and these professionals are well known as Neurologists. In order to diagnose the condition of the brain, physicians proceed for imaging which includes Computed axial tomography, Diffuse optical imaging, Event-related optical signal, Magnetic resonance imaging, Functional magnetic resonance imaging, Magnetoencephalography, Positron emission tomography, Single-photon emission computed tomography, Cranial ultrasound. Other more invasive developments in this field include the electrocorticogram (ECoG). In this technique recording electrodes are placed under the dura, leading to a greater proximity of the recording electrode to the brains surface and thus higher signal-to-noise ratio. It has higher spatial and temporal resolution compared to EEG. Novel developments in this field demonstrate the benefit of a flexible sub-dural neural implant, a so called electronic dura mater, is better able to modulate neural signals without causing tissue damage due to its flexible nature [83-90]. The electronic dura mater is capable of providing chemical and electrical stimulation in the spinal cord allowing for restored locomotion after a paralyzing injury. The goal of developing minimally invasive electrodes has further progressed through the innovation of syringe injectable microporous flexible mesh electrodes. These sub-micrometer mesh electrodes are able to be injected into the brain and unfold locally to allow for a tight integration while causing little chronic immunoreactivity. This group was able to successfully inject this mesh into the hippocampus of a live rodent brain, and showed that there was no significant increase in glial fibrillary acidic protein (GFAP), which can be a measure of adverse response to the injection of a foreign material. Furthermore, the mesh integrated successfully with the local extracellular matrix, which included cells that stained positive for neuronal nuclear antigen (NeuN), demonstrating integration with adult neurons.

Optogenetics is the genetic enhancement of neurons to become responsive to light. This is achieved through the production of light sensitive receptors that can either activate or inhibit neurons when light hits the enhanced receptor [91-98].

Neuro-nano-technology (NNT) is a fast emerging field that aims to develop novel nano-structures that can interface with the brain. Since the size of nano-structures is in the same order of magnitude as neural biomolecules this technology is particularly suited to be used for neural interfacing. An excellent example is the novel application of magnetic nanoparticles, a compound that was previously employed for use as a contrast agent in MRI scans and as a cell-destructive therapy in cancer treatment, due to its magnetic hyperthermia. Now combined with viral vector induced heat-sensitive capsaicin receptor (TRPV1) expression, scientists have been able to develop fast magneto-thermal control of neural activity in vivo [98-102].

## CONCLUSION

Neurological disorders are most prominent and prevalent in USA. Many innovative technologies have been developed to reduce the mortality due to brain disorders. In 2016, FDA approved an Investigational New Drug application from Neuralstem, Inc., a Rockville, Md.-based biotech company, to test the safety of a treatment in which patients will receive injections of the company's patented neural stem cells at multiple sites along the spinal cord. All this information can be accessed in open access health care literature which exhibits the novel techniques and innovative researches taking place in the research field. Many professionals share their views; suggestions through the open access literature which can be accessed by all in order attain knowledge on Neurodiseases.

## REFERENCES

1. Manckoundia P, et al. Alterations in olfaction during Alzheimer disease, Parkinson disease and lewy body disease. J Alzheimers Dis Parkinsonism. 2016;6:274.
2. McLarnon JG. Chemokine interleukin-8 (IL-8) in Alzheimer's and other neurodegenerative diseases. J Alzheimers Dis Parkinsonism. 2016;6:273.
3. Choi H, et al. Interaction between amyloid beta toxicity and the PI3K pathway in Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:269.

4. Begum MM, et al. Anticholinesterase and antioxidant potentials of a medicinal plant *Abroma augusta*: Implications for the alternative treatment therapy of cognitive deficits in Alzheimer's disease. Clin Pharmacol Biopharm. 2015;4:148.
5. Mun MJ, et al. The genetic relationship between interleukin genes in Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:263.
6. Dumont C, et al. Psycho-educational approach in Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:261.
7. Uddin MS, et al. Searching the linkage between high fat diet and Alzheimer's disease: A debatable proof stand for ketogenic diet to alleviate symptoms of Alzheimer's patient with APOE ε4 Allele. J Neurol Neurophysiol. 2016;7:397.
8. Pogue AI et al. Natural and synthetic neurotoxins in our environment: From Alzheimer's disease (AD) to Autism spectrum disorder (ASD). J Alzheimers Dis Parkinsonism. 2016;6:249.
9. Yamazaki T, et al. Burden of vascular risk factors on the evolution of Alzheimer's disease: A longitudinal observational study. J Alzheimers Dis Parkinsonism. 2016;6:254.
10. Chua K, et al. A randomized controlled pilot trial of Chinese medicine (Di-Tan Decoction) in the treatment of Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:256.
11. Korrapati N, et al. Alzheimer's disease and memory loss - A review. J Alzheimers Dis Parkinsonism. 2016;6:259.
12. Martins IJ. Bacterial lipopolysaccharides change membrane fluidity with relevance to phospholipid and amyloid beta dynamics in Alzheimer's disease. J Microb Biochem Technol. 2016;8:322-324.
13. Liew H and Lee SH. Soluble neuregulin-1 as a diagnostic biomarker for Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:271.
14. Abyad A. Alzheimer's the road ahead in the Middle East. J Alzheimers Dis Parkinsonism. 2016;6:241.
15. Ali AA, et al. Comparative study on the influence of epigallocatechin-3-gallate and/or coenzyme Q10 against Alzheimer's disease induced by aluminium in normally-fed and protein malnourished rats. J Alzheimers Dis Parkinsonism. 2016;6:240.
16. Gelbard A. Glucose role in treatment of Alzheimer's disease. J Gerontol Geriatr Res. 2016;5:334.
17. Szot P. Elevated cerebrospinal fluid norepinephrine in the elderly can link depression and a reduced glymphatic system as risk factors for Alzheimer's disease. J Aging Sci. 2016;4:158.
18. Nagae T, et al. Cytokines and cytokine receptors involved in the pathogenesis of Alzheimer's disease. J Clin Cell Immunol. 2016;7:441.
19. Uddin MS, et al. Neuroprotective activity of *Asparagus racemosus* Linn. against ethanol-induced cognitive impairment and oxidative stress in rats brain: Auspicious for controlling the risk of Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:245.
20. Dong Y, et al. Synthesis, biological evaluation and molecular modeling of (E)-3-Propargylene-1, 3-Dihydro-2H-Indol-2-Ones as Acetyl- and butyryl cholinesterase inhibitors for the treatment of Alzheimer's disease. Med chem. 2016;6:372-376.
21. Funicello M, et al. Heterocycles for Alzheimer disease: 4- and 5-substituted benzothiophenes as starting scaffold in the construction of potential new inhibitors of BACE 1. Med chem. 2016;6:377-384.
22. Garcia-Sierra F. Commentary on ubiquitin is associated with early truncation of tau protein at aspartic acid 421 during the maturation of neurofibrillary tangles in Alzheimer's disease. J Med Surg Pathol. 2016;1:121.
23. Jester H and Al-Achi A. Does the Mediterranean diet or botanicals influence Alzheimer's disease? Clin Pharmacol Biopharm. 2016;5:e123.
24. Archer T. Amelioration of symptoms and biomarkers of Alzheimers disease by physical exercise. Open access. 2016;2:e105.
25. Brookes K, et al. Identifying polymorphisms in the Alzheimer's related APP gene using the minion sequencer. Next Generat Sequenc & Applic. 2016;3:125.
26. Ajami S, et al. Role of Alzheimer disease national registry system in prevention and treatment management. J Bioeng Biomed Sci. 2016;6:188.
27. Melamed I. Alzheimer's disease of the immune system: A new variant of immune deficiency. Immunother Open Acc 2016;2:115.

28. Bambo MP, et al. Retinal and optic disc alterations in Alzheimer's disease: The eye as a potential central nervous system window. J Alzheimers Dis Parkinsonism. 2016;6:223.
29. Kljajevic V. An emerging model of word retrieval in preclinical Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:225.
30. Cifuentes D, et al. Targeting hypertension to manage Alzheimer's disease: Rational and promise. J Alzheimers Dis Parkinsonism. 2016;6:228.
31. Dessouky MM and Elrashidy MA. Feature extraction of the Alzheimer's disease images using different optimization algorithms. J Alzheimers Dis Parkinsonism. 2016;6:230.
32. Cacabelos R. Epigenetics of brain disorders: The paradigm of Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:229.
33. Wu Y, et al. Observation study of the retina with the Alzheimer's disease or amnestic mild cognitive impairment Patients. J Clin Exp Ophthalmol. 2016;7:545.
34. Shinno H, et al. Alterations in rapid eye movement sleep parameters predict for subsequent progression from mild cognitive impairment to Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:218.
35. Suzuki N, et al. Cellular transplantation as the treatment of Alzheimer's disease in mouse models. J Alzheimers Dis Parkinsonism; 2016;6:219.
36. Zerovnik E, et al. Recent developments in treating Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:220.
37. Allen HB, et al. Alzheimers disease: A novel hypothesis for the development and the subsequent role of beta amyloid. J Neuroinfect Dis. 2016;7:211.
38. Woods JJ, et al. Cigarette smoking: A causal factor for Alzheimer's disease? JGerontol Geriatr Res. 2016;5:286.
39. Biswas A and Das SK. Alzheimer and Parkinson's disease -Two faces of the same disease? J Alzheimers Dis Parkinsonism. 2016;6:222.
40. Singh A and Kumar A. A comparative analysis of intrahippocampal amyloid beta (1-42) and intracerbroventricular streptozotocin models of alzheimer's disease: possible behavioral, biochemical, mitochondrial, cellular and histopathological evidences. J Alzheimers Dis Parkinsonism. 2016;6:208.
41. Narayan M, et al. Identification of novel Cdc37 interacting proteins and pathways in human Alzheimer's disease brain tissue using mass spectrometry. J Data Mining Genomics & Proteomics. 2016;7:193.
42. Zhang X, et al. Is the combination/multi-target therapy a new promise for Alzheimer's disease? J Alzheimers Dis Parkinsonism. 2016;6:216.
43. Shinno H, et al. Effect of yokukansan, a traditional herbal prescription, on sleep disturbances in patients with Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:215.
44. Passafiume D, et al. Recognition of environmental emotional sounds in Alzheimer's disease. J Alzheimers Dis Parkinsonism. 2016;6:217.
45. Hussain G, et al. Synthesis and molecular docking study of some new 4-{[4-(2-Furoyl)-1-piperazinyl]methyl}-N-(substituted-phenyl)benzamides as possible therapeutic entrants for Alzheimer's disease. Med chem. 2016;6:129-136.
46. Perez A, et al. The rationale of using coffee and melatonin as an alternative treatment for Alzheimer's disease. j Alzheimer's dis parkinsonism. 2016;6:205.
47. Lavano A, et al. Deep brain stimulation for Alzheimer's disease. Brain Disord Ther. 2016;5:202.
48. Bostancıklıoglu M. Anti-Aβ antibodies in the fighting with Alzheimer's disease. Single Cell Biol. 2016;5:127.
49. Gottschalk WK, et al. The role of upregulated APOE in Alzheimer's disease etiology. J Alzheimers Dis Parkinsonism. 2016;6:209.
50. Valencic M. Excessive blood preassure lowering: possible cause of Alzheimer's disease. J Gerontol Geriatr Res. 2016;5:265.
51. Sourdet S, et al. Effectiveness of a specific care plan in alzheimer's disease in the oldest old. J Alzheimers Dis Parkinsonism. 2015;5:194.
52. Benussi A, et al. Transcranial magnetic stimulation in alzheimer's disease and cortical dementias. J Alzheimers Dis Parkinsonism. 2015;5:197.
53. Cintra MTG, et al. P300 Evoked potential and risk of mild cognitive impairment progression to Alzheimer's dementia: A literature review. J Neurol Neurophysiol. 2015;6:322.
54. Zhang Q, et al. Alzheimer's model develops early ADHD syndrome. J Neurol Neurophysiol. 2015;6:329

55. Maheswari PD, et al. Micellar solubilization in the formulation development of poorly soluble naproxen. Pharmaceut Reg Affairs. 2013;2:108.
56. Rothman KJ and Lanza LL Estimated risks of fatal events associated with acetaminophen, Ibuprofen and naproxen sodium used for analgesia. Adv Pharmacoepidem Drug Safety. 2013;2:124.
57. Silva Solon LG, et al. Comparative bioavailability of a generic and two compounded naproxen sodium suspensions administered to rats. J Bioanal Biomed. 2010;2:048-054.
58. Setiawati E, et al. Bioequivalence study with two naproxen sodium tablet formulations in healthy subjects. J Bioequiv Availab. 2009;1:028-033.
59. Reddy YR, et al. Rapid simultaneous determination of sumatriptan succinate and naproxen sodium in combined tablets by validated ultra-performance liquid chromatographic method. J Anal Bioanal Tech. 2011;2:121.
60. Abid MR and Sellke FW. Antioxidant therapy: Is it your gateway to improved cardiovascular health? Pharm Anal Acta. 2015;6:323.
61. Robles L, et al. Role of oxidative stress in the pathogenesis of pancreatitis: Effect of antioxidant therapy. Pancreatic Dis Ther. 2013;3:112.
62. Azu OO. The male genital tract in the era of highly active antiretroviral therapy (HAART): Implication for antioxidant therapy. J AIDS Clinic Res. 2012;3:169.
63. Dawood M and Efferth T. Medicinal plants and DNA methylation of cancer. Med Aromat Plants. 2015;4:e161.
64. Teschler S, et al. Aberrant DNA methylation of ribosomal RNA genes in human cancer. Mol Biol. 2015;4:128.
65. Wang Y, et al. Altered expression and DNA methylation profiles of ercc6 gene in lens tissue from age-related cortical cataract. J Clin Exp Ophthalmol. 2015;6:392
66. Su J, et al. Advances in bioinformatics tools for high-throughput sequencing data of DNA methylation. Hereditary Genet. 2012;1:107.
67. Szilagyi K, et al. Exploring DNA methylation of MYLK as a contributor to acute respiratory distress syndrome disparities. J Pulm Respir Med.2013;3:e127.
68. Liu J, et al. Liquid chromatography tandem mass spectrometry for the measurement of global DNA methylation and hydroxymethylation. J Proteomics Bioinform. 2013;S2:005.
69. Leo E and Martinelli G. DNA methylation in chronic myeloid leukemia. J Mol Genet Med. 2014;08:118.
70. Gigek CO, et al. SIRT1, IGFBP-3 and CAV1 Promoter DNA methylation in aging. Transl Med (Sunnyvale). 2014;4:133.
71. Patten DA, et al. Reactive oxygen species: Stuck in the middle of neurodegeneration. J Alzheimers Dis. 2010;2:S357-367.
72. Smith MA, et al. Iron accumulation in Alzheimer disease is a source of redox-generated free radicals. Proc Natl Acad Sci USA. 1997;94:9866–9868.
73. Leibson CL, et al. risk of Dementia among persons with diabetes mellitus: A population-based cohort study. Am J Epidemiol 1997.
74. Sinha BK. Roles of free radicals in the toxicity of environmental pollutants and toxicants. J Clinic Toxicol. 2013;S13:e001.
75. Butnariu M and Samfira I. Free radicals and oxidative stress. J Bioequiv Availab. 2012;4: iv-vi.
76. Butnariu M. Action and protection mechanisms of free radicals. J Pharmacogenomics Pharmacoproteomics. 2012;3:e129.
77. Niknam M, et al. Anti- inflammatory effects of dietary antioxidants in patients with coronary artery disease. Endocrinol Metab Syndr. 2015;4:207.
78. Garcia-Sierra F. Commentary on ubiquitin is associated with early truncation of tau protein at aspartic acid 421 during the maturation of neurofibrillary tangles in Alzheimer disease. J Med Surg Pathol. 2016;1:121.
79. Paris D, et al. Anatabine attenuates tau phosphorylation and oligomerization in P301S tau transgenic mice. Brain Disord Ther. 2014;3:126.
80. Lu J. Modeling Parkinson's disease with human induced pluripotent stem cells. Clon Transgen. 2014;3:e113.
81. Werner FM and Covenas R. Classical neurotransmitters and neuropeptides involved in Parkinson's disease: A multi- neurotransmitter system. J Cytol Histol. 2014;5:266.

82. Byl N, et al. Aerobic exercise enabled with rehabilitation technology improves mobility and balance of patients with Parkinson's disease: A quality assurance report. Int J Phys Med Rehabil. 2014;2:220.
83. Lieberman A. Falls in Parkinson disease: The relevance of short steps. J Nov Physiother. 2014;4:209.
84. Sadek HL, et al. The inflammatory cytokines in the pathogenesis of Parkinson's disease. J Alzheimers Dis Parkinsonism. 2014;4:148.
85. Suvorit SB, et al. Postencephalitic Parkinsonism in a patient with mumps infection: A case report. J Neuroinfect Dis. 2014;5:162.
86. Joanna C. Rehabilitation procedures aimed at decreasing motor symptoms in Parkinson's disease. Int J Phys Med Rehabil. 2014;S5:009.
87. Wheeler CJ, et al. T-lymphocyte deficiency exacerbates behavioral deficits in the 6-OHDA unilateral lesion rat model for Parkinson's disease. J Neurol Neurophysiol. 2014;5:209.
88. Mao CJ, et al. Prominent non-motor symptoms in patients with Parkinson's disease and pain. J Neurol Neurophysiol. 2014;5:208.
89. Mally J. Non-invasive brain stimulation and its supposed site of action in the rehabilitation of Parkinson's disease and stroke. Int J Neurorehabilitation. 2014;1:e103.
90. Miyazaki Y, et al. MIBG myocardial scintigraphy can predict the occurrence of wearing-off phenomenon in early-stage Parkinson's disease. J Neurol Disord. 2014;2:154.
91. Mehanna R. Cognitive changes after deep brain stimulation in Parkinson's disease: A critical review. Brain Disord Ther. 2014;3:116.
92. Blanchet PG and Hoffman PR. Factors influencing the effects of delayed auditory feedback on dysarthric speech associated with Parkinson 's disease. Commun Disord Deaf Stud Hearing Aids. 2014;2:106.
93. Amran S, et al. the Pharmacokinetic study of aspirin, paracetamol and naproxen with magnesium sulfate. Pharm Anal Acta. 2015;6:372.
94. Whitesman P. Preliminary set theory-type analysis of proteins associated with Parkinson's disease. J Alzheimers Dis Parkinsonism. 2014;4:170.
95. Bitner A, et al. The role of multidrug interactions in the safety of pharmacotherapy for concomitant Parkinson's disease and arterial hypertension in Poland. J Pharmacovigilance. 2014;2:151.
96. Barboza NM, et al. The effect of an exercise-based intervention to the quality of life of patients suffering from Parkinson's disease: Prospective study. J Yoga PhysTher. 2014;4:170.
97. Turner TH, et al. Epidermal growth factor (EGF) is associated with memory and executive functioning in progressed Parkinson's disease. J Alzheimers Dis Parkinsonism. 2014;4:164.
98. Hanby MF, et al. Emotional and cognitive processing deficits in people with Parkinson's disease and apathy. J Alzheimers Dis Parkinsonism. 2014;4:156.
99. Camargo CHF, et al. Orthostatic hypotension and its relationship to the clinical course of patients with Parkinson's disease. J Alzheimers Dis Parkinsonism. 2014;4:155.
100. Seitz RJ, et al. Monitoring of visuomotor coordination in healthy subjects and patients with stroke and Parkinson's disease: An application study using the PABLOR-device. Int J Neurorehabilitation. 2014;1:113.
101. Bryan Lieber BA, et al. Motion sensors to assess and monitor medical and surgical management of Parkinson's disease. Int J Phys Med Rehabil. 2014;2:221.
102. Leroi I, et al. Apathy and emotional blunting in Parkinson's disease. Brain Disord Ther. 2014;3:141.