

Reflexive and volitional saccadic eye movements and their changes in age and progressive supranuclear palsy

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The generation of saccades, including vertical and horizontal, and those with reflexive or volitional components, engages different brain networks and oculomotor processes. While differences in the control of vertical and horizontal saccades are well documented, differences in the generation of reflexive and volitional saccades are less well understood. Saccadic eye movements are not only useful in understanding the healthy brain, but also the pathology of neurological conditions. In Progressive supranuclear palsy (PSP) degeneration occurs in centres for control of vertical eye movements resulting in slower and smaller vertical saccades. The field would benefit from more detailed mapping of how saccadic parameters differ in PSP to aid our understanding of PSP pathology and to improve its diagnosis, which remains an unmet clinical challenge in early stages of disease progression. In this study the differences in the amplitude and velocity of different horizontal and vertical saccades were characterized in healthy controls and in PSP to assess if there were differences in the oculomotor commands that produce them and in search of a novel biomarker for the disease. It was found that reflexive saccades are faster and

more accurate than volitional saccades in healthy individuals, irrespective of age, perhaps reflecting the evolutionary advantage of a quick and accurate visual threat response system. There is also evidence that upward saccades are inaccurate but have enhanced velocity which possibly reflects the presence of a previously suggested anti-gravity oculomotor pathway. Findings on the effect of ageing add to previous evidence that saccadic velocities and accuracies decrease with age. A key finding in PSP was that velocity and accuracy of saccades does not decrease over one-minute timescales, something which does not occur Parkinson's disease, suggesting a novel differentiating biomarker.

Biography

Akila Sekar was Experienced Undergraduate Research Assistant with a demonstrated history of working in the research industry. She also was Skilled in Public Speaking, Management, Leadership, Data Analysis, and Research. Strong research professional with a BSc Biological Science with Management focused in Biology/Biological Sciences, General from Imperial College London).

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New advances in the treatment of attention deficit hyperactivity disorder

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Attention Deficit Hyperactivity Disorder is a neurobehavioral disorder most commonly diagnosed in childhood or adolescence but often extends well into adulthood. It is a complex neurological disorder which involves several neurotransmitters and multiple regions of the brain. It often co occurs with other psychiatric disorders like anxiety, mood and behavioural disorders. There are both pharmacological and non-pharmacological treatments available for the treatment of ADHD. The pharmacological treatment is in turn divided into two main categories, stimulants and non-stimulants. The stimulant medications are often the first choice but some non-stimulant medications can also be very effective in the management of ADHD. The purpose of presenting this poster is to open a discussion about the new advances including current and upcoming treat options, how they compare with each other and the pros and cons of using

these pharmacological agents.

Biography

Rahila Idris Qazi graduated from Dow University of Health Science, Karachi, Pakistan. She completed her psychiatry residency training at SUNY Buffalo, New York with award as a distinguished resident and then completed her two years fellowship in Child and Adolescent Psychiatry at Indiana University School of Medicine, Indiana. She has been practicing psychiatry in the state of Indiana for more than 20 years and is Board Certified in Adult as well as Child and Adolescent Psychiatry. She is the medical director of her private psychiatry practice and is also affiliated with Meridian health services which are a well reputed FQHC in the state of Indiana. She has extensive experience in working with adults and children with ADHD, Autism spectrum disorder, mood and anxiety disorders, psychosis and substance abuse disorders. She is a respected and well known speaker and has presented in multiple settings like medical conferences, schools, universities, church, synagogues etc in United States, Pakistan and UAE.

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Spirituality as a buffer to stress from domestic violence

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Excessive stress can epigenetically alter an individual's DNA and affect mental health. For instance, women who have been exposed to domestic violence have been found to have psychopathological alterations in their behaviors and in their hypothalamus-pituitary-adrenal axis functioning. However, these changes are reversible because people can change their genetic makeup by changing their thoughts and beliefs. This provides an opportunity for domestic violence survivors from acquiring behavioral and cognitive practices that support healthier epigenetic modifications in the expression of genes. The use of strategies centered on spirituality has been proposed as a skill that can enhance resilience, which

is the ability to adapt to stress and adversities. Similar to the epigenetic mechanisms involved in excessive stress, resilience can also alter gene expressions that support healthier neuropsychological functioning. Among victims of domestic violence, enhancing their spirituality through prayers, meditation, or cognitive reframing can lead to neuropsychological changes that can offset the negative psychopathological alterations that occur during excessive stress. A study that frames spirituality as a buffer for stress caused by domestic violence can be significant in further illuminating the power of thoughts and beliefs in influencing our neurological functioning.

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Antibacterial and antifungal activities and phytochemical evaluation of melia azedarach

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The purpose of the current study was to investigate the antibacterial and antifungal activity of the ethanolic and aqueous extracts of Melia azedarach Linn leaves. The extracts were tested against six bacterial strains including Pseudomonas aeruginosa, E. coli, Staphylococcus epidermidis, Staphylococcus aureus, Bacillus subtilis, Enterococcus and Salmonella respectively; and three fungal species including Candida albicans, Terebrum and Brivicalous. Three concentrations, i.e. 100mg/ml, 150mg/ml and 200mg/ml of both aqueous and ethanolic extracts were tested using Agar Disk Diffusion Method. All the tested

concentration showed that Melia azedarach leaf extracts were effective against the tested pathogenic microorganisms. A concentration of 200mg/ml of both the extracts was more effective compared to 100mg/ml and 150mg/ml. Phytochemical screening revealed the presence of alkaloid, mucilage, saponin, tannins, phenols, starch, polyphenol, fat and oil. The investigation suggested that Melia azedarach Linn leaves can be considered as a good medicinal and biological active agent. However, further study is needed to see the biologically active constituents of leaves and other parts.

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Early maternal separation: A rodent model of anxiety

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Background: Maternal separation presents a major risk factor for anxiety, yet only a few studies have investigated the effect of maternal stress on anxiety-related behavioral impairments. Thus, we aimed to validate an animal model that reflects emotional disturbances seen in patients with maternal stress-induced anxiety. Balb C mice were used in this study. They were subjected to maternal separation from postnatal day one to postnatal day 21, then they were tested for anxiety using the elevated plus maze, open field, Clear/Obscure Chamber test, and hole board. Because benzodiazepines were the only effective anxiolytic medications at the time, animal models predictive validity was reliant on their ability

to identify the pharmacological activity of these and related substances.

Results: Mice were treated with diazepam (1 mg/kg) to remedy maternal separation-induced behavioral change. Diazepam treatment significantly reduced anxiety. Our obtained results revealed that the model was successfully created by increasing anxiety-like behavior in subjected animals in the four paradigms.

Conclusions: These results give predictive validity to the animal model and encourage its use in future studies related to anxiety.

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Phage therapeutics and diagnostics: A double edged sword to combat amr

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Antimicrobial resistance (AMR) is a major global threat and concern to human health. The globe has been relying on antibiotics to keep the human race healthy, but due to the emergence of multi drug resistance among the pathogens and the lack of novel antibiotics, there is an urgent need for an alternative such as bacteriophages to combat AMR. They are unrefined predators that are experiencing resurgence due to the involvement of researchers all over the world. Our study provides bacteriophages as double edged sword to combat AMR by providing diagnostic as well as therapeutic approach towards these multidrug resistant pathogens causing Urinary Tract Infections. Urinary tract infection (UTI) is a common infectious disease that affects both men and women and is

posing public health concern. The prevalence of multidrug-resistant (MDR) organisms is a serious issue that affects all infectious diseases, including UTI. AMR is continuously rising, and the effectiveness of antibiotics continues to deteriorate. We are in a transition period, and the World Health Organization's theme emphasises the necessity of AMR prevention. Bacteriophages can thus also serve as potent tool in biosensors for detection of MDR pathogens causing UTI. Because of the infringement and amplification of such AMR bacteria, phage therapy has become a viable solution, not an apocalyptic fiction. Phage therapy seems to have tremendous therapeutic potential as of date until it is proved otherwise in time to come.

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