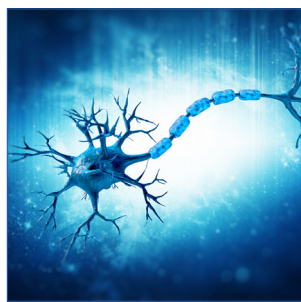

Video Presentation

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Repetitive Transcranial Magnetic Stimulation improves Depressive symptoms and quality of life of Poststroke patients - Prospective case series study

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Poststroke depression (PSD) is a serious psychiatric complication often reported after a stroke. Nearly a third of stroke survivors experience depressive symptoms at some point, affecting their functional recovery and quality of life. In recent years, repetitive transcranial magnetic stimulation (rTMS) has been studied by many researchers and found to be a safe supporting tool for the treatment of PSD.

Objective: We aim to evaluate the effects of rTMS on PSD and on the quality of life of poststroke patients.

Method: A prospective clinical case series, performed at CRER Rehabilitation, Brazil, between June 2016 and May 2017. A nonprobabilistic sample (n=15) was divided into 2 groups (excitatory stimulation in F3, n=8; inhibitory stimulation in F4, n=7) and underwent 20 sessions of rTMS. Individuals were assessed according to the 17-item Hamilton Depression Rating Scale (HAM-D17) and World Health Organization Quality of Life-Brief Version (WHOQOL-BREF) questionnaire at 3 different moments: baseline, at the end of the treatment, and in a 1-month follow-up meeting.

Results: Both groups presented a significant change in the score of all WHOQOL-BREF domains and in HAM-D17. In the group that received inhibitory stimulation (F4), score


changes were continuous and gradual, comparing the 3 moments. In the excitatory stimulated (F3) group, however, the improvement in scores was more expressive between baseline and the second moment, without significant changes in the follow-up.

Conclusions: The findings of this clinical study suggest that rTMS can be a promising tool, capable of relieving depressive symptoms and helping in the improvement of poststroke patients' quality of life.

Speaker Biography

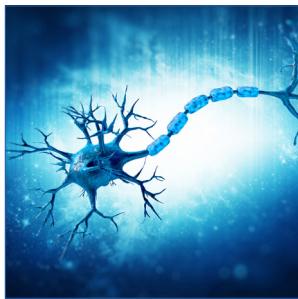
Hercílio Barbosa da Silva Junior is a Psychologist (2004) and Neuropsychologist (2008) and he has a Master degree in Health Sciences from the Federal University of Goiás, Brazil (2017). He worked in a huge local rehabilitation center for almost 6 years (2011-2016), where he helped to implant the Neuromodulation Lab in 2013. Since then he research non-invasive brain stimulation techniques (rTMS and tDCS) in the treatment of neurological disorders (mood, memory and language recovery after stroke or traumatic brain injuries), psychiatric disorders (anxiety and mood disorders) and learning disorders (ADD and ADHD). He is the founder director of the Neuronus Institute for Trans-disciplinary Brain Studies located in Goiânia, Goiás, Brazil, where he is based.

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Comparison of brief clinical delirium and cognitive testing amongst patients admitted via the Trauma and Orthopaedic (T&O) acute intake - A service evaluation on the clinical dependence, efficacy and accessibility of implementing Gwent Orientation and Awareness Listing (GOAL) testing in relation to the 4AT at the Royal Gwent Hospital Newport, UK

Jack Wellington LGMS

Cardiff University School of Medicine, UK

Background: GOAL is the brief delirium/cognitive clinical test currently employed at Royal Gwent Hospital Newport where the 4AT test is routinely utilized. To our knowledge, both tests have not been prospectively compared against, relative to equal patient cohorts.

Objectives: We aim to, (1) evaluate two rapidly performed valid cognitive examinations amongst the same patient cohort, and (2) assess patient testing results among acute/emergency T&O admissions compared with previously obtained patient data presenting via the acute medical intake.

Methods: Verbal consent to cognitive testing by means of GOAL and 4AT was sought from patients presenting acutely to T&O over four weeks period. A GOAL score of <8/10 is deemed a "fail", and on 4AT any error is deemed "possible cognitive impairment". Patient documentation regarding dementia, epilepsy, psychiatric/neurological illness was recorded alongside living arrangements.

Results: There were 146 patients, of whom 10 were not well enough to be scored, and 1 patient declined to participate. Therefore, results are based on a 135-patient cohort, all of whom were able to co-operate with both scores. Of these, 92 "passed" both tests, 40 "failed" on 4AT, of which 18 also "failed" on GOAL. There were 3 who "failed" on GOAL but passed on 4AT. Likelihood of test failure was significantly greater with 4AT ($X^2 = 7.65, p < 0.01$). Ages and comparisons

on GOAL testing results with historical general medical patient cohort displayed significant differences between patient co-operation in acute medical and T&O intakes.


Conclusions: (1) The 4AT test is more likely to signal cognitive impairment than GOAL among T&O emergency admissions; (2) T&O intake patients are more likely to co-operate with cognitive testing by GOAL, and they perform better than acute medical emergency admissions.

Speaker Biography


Jack Wellington LGMS is a year 4 Medical Student at Cardiff University Medical School, eager to pursue a career in Neurosurgery alongside attaining a DTM&H for clinical practice globally, achieve a PhD in Surgical Sciences (specializing in Neuro infectious Diseases), a WHO Internship in Geneva, and an academic foundation post (conducting research in neurosurgical practice). I am currently intercalating at the LSHTM for an MSc Medical Microbiology and aspire to undertake a neurosurgery elective at Oxford/Harvard/Yale University. He currently holds various national and university society positions, examples including Research and Audit Lead for the Student Psychiatry Audit and Research Collaborative (SPARC) UK, President and Founder of Cardiff University Infectious Diseases Society, RCPSC Trainees' Committee Undergraduate/Student Member, previous positions including president, clinical and intensive care leads for Cardiff University Dermatology, Clinical Neurosciences and Anesthetics, Perioperative and Intensive Care Societies respectively, and has lead several local and national audits/research projects.

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 Notes:



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COMPARISON OF BRIEF CLINICAL DELIRIUM AND COGNITIVE TESTING AMONGST PATIENTS ADMITTED VIA THE TRAUMA AND ORTHOPAEDIC (T&O) ACUTE INTAKE: A SERVICE EVALUATION ON THE CLINICAL DEPENDENCE, EFFICACY AND ACCESSIBILITY OF IMPLEMENTING GWENT ORIENTATION AND AWARENESS LISTING (GOAL) TESTING IN RELATION TO THE 4AT AT THE ROYAL GWENT HOSPITAL NEWPORT

Miles Allison¹, Julie Alexander¹, Nafees Ali¹, Seetharam Mannem¹, Paul Mizen¹, Inderpal Singh², Jack Wellington³, Reem Najji³, Alexander Eggleton³, Aine Jones³, Megan Stone³, Giles Greene³, David Fone³, Nicholas Doyle³

¹Aneurin Bevan Local University Health Board (Royal Gwent Hospital), ²Aneurin Bevan Local University Health Board (Ysbyty Ystrad Fawr Hospital), ³Cardiff University

Objectives:

- Primary Objectives:**
Assess 2 rapidly-performed valid cognitive examinations, the GOAL and 4AT, amongst T&O intake according to clinical effectiveness, availability and reliability. Critically-appraise acute/emergency T&O admissions testing results compared with the previous acute medical intake patient dataset.
- Secondary Objectives:**
Evaluate appropriate patient past medical (and social) histories on GOAL and 4AT testing alongside study participant demographics to identify certain factors which may impact testing success/failure rates for both cognitive testing systems.

Methodologies:

Over a 4-week study period (12th March 2019 - 8th April 2019 weekends inclusive), we identified eligible patients according to a strict exclusion criteria (Figure 1).

Verbal consent from eligible patients presenting via the acute T&O intake at the Royal Gwent Hospital was sought for GOAL and 4AT testing during the study period. A scoring of <8/10 s indicates a "fail" on the GOAL and any error on the 4AT indicates "possible cognitive impairment". (1-2)

Evidence of current or pre-existing Dementia, Epilepsy, psychiatric/neurological illness in patient documentation was noted alongside living arrangements.

Background and Introduction:

GOAL is currently employed Delirium and cognitive testing system in MAU at Royal Gwent Hospital Newport whereas the 4AT assessment is routinely utilised at Ysbyty Ystrad Fawr Hospital. (1-2) To our knowledge, both exams haven't been compared against each other prospectively in relation to equal patient cohorts. Thus, we aim to evaluate and critically-appraise the GOAL and 4AT tests amongst an equal patient cohort. The present study compares patient-testing results among acute/emergency T&O admissions against patient data collected previously presenting via the acute medical intake.

Results:

- Results are based on a 135-patient cohort, all of whom were able to co-operate with both scores. Of these, 92 "passed" both tests, 40 "failed" on 4AT, of which 18 also "failed" on GOAL. There were 3 who "failed" on GOAL but passed on 4AT.
- Likelihood of test failure was significantly greater with 4AT ($\chi^2 = 7.65, p < 0.01$). Ages and comparisons on GOAL testing results with historical general medical patient cohort displayed significant differences between patient co-operation in acute medical and T&O intakes (Figure 2).

Cohort	Median age	Mean age (SD)	Pass (Score >7)	Fail (Score <8)	Total	Unable to co-operate
T&O	64	63 (19.8)	114 (84%)	21 (16%)*	135	0
Medical	73	68 (18.0)	720 (73%)	270 (27%)*	990	58

Figure 2 - Comparison between T&O and general medical intakes for current and historical datasets (* $\chi^2 = 8.51, p < 0.01$; SD - Standard Deviation).

Conclusions:

- The 4AT test is more likely to signal cognitive impairment than GOAL among T&O emergency admissions
- T&O intake patients are more likely to co-operate with cognitive testing by GOAL, and they perform better than acute medical emergency admissions

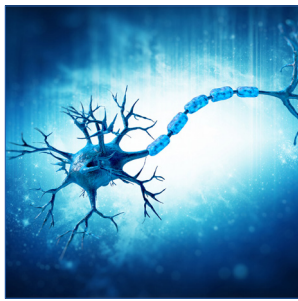
Acknowledgements:

I would personally like to thank Dr Miles Allison for his supervision throughout my SSC project, the Royal Gwent Hospital Newport T&O staff and the Aneurin Bevan Local University Health Board for allowing this study to be conducted, Alexander Eggleton and Reem Najji for assisting with the data collection during the study period and previous collaborators of this study (listed above)

Figure 1 - Outline of participant data collected for 4-week study period.

Accepted Abstracts

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Post-operative emergence of acute Brachial Neuritis following Posterior Cervical Laminectomy with fusion

Raj H. Patel and Rishi Sheth

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Idiopathic brachial plexus neuritis or neuralgic amyotrophy is a rare neurological condition whose true etiology currently remains unknown. Epidemiologically, the incidence of this condition is exceptionally rare with only 1.6 cases for every 100,000 people¹⁵. Symptoms present an initial acute and sudden pain to the shoulder girdle and upper arm which is followed by a sense of profound weakness and numbness to the upper arm¹⁰. Localized neuropathy within the arm-pit region may also be presented. The pain often exacerbates upon movement of the shoulder. Due to the anatomic location affected and the nature of the clinical symptoms presented, accurate diagnosis of brachial plexus neuritis poses a challenging diagnostic task for physicians due to remarkably similar symptoms expressed by differential diagnoses.

Here, we report the case of a 55-year-old woman who underwent surgery entailing cervical laminectomy with instrumented fusion. She presented with postoperative symptoms of severe pain in the left arm with significant weakness within 24 hours after surgery. A diagnosis of brachial plexus neuritis was made based on the symptoms presented

and upon review of imaging scans. After a six-month follow-up visit, the patient recovered from the brachial neuritis but has residual numbness in the hand. The presentation of this case serves to transmit three fundamental purposes. First, this case serves to establish an intriguing possible association of the post-surgical period of cervical laminectomy with acute brachial neuritis and signifies the importance post-operative linkage with brachial neuritis in general. Second, this case also highlights the importance of close clinical monitoring of patients with unique symptoms within the postoperative follow-up period to ensure successful improvement and accurate diagnosis. Third, as an underdiagnosed and relatively obscure condition, this case serves as an imperative reference for physicians to illuminate differential diagnosis of similar symptomatic conditions and also to promote knowledge of brachial plexus neuritis which can lead to an early and precise diagnosis.

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A novel Neuroimaging technique to study Neuropathology of Neurological disorders

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Because of poor understanding of the neuropathology, it is often difficult to diagnose and treat many neurological conditions. Advances in neuroimaging techniques have helped us understand these conditions but these techniques are severely deficient in their ability to detect and measure neurotransmitters in the live human being. Since neurotransmitters are key components of the brain function, an important aspect of the brain function remains uninvestigated. Investigators are making efforts to develop techniques that allows accurate detection and measurement of a neurotransmitter. We developed one of those techniques. It is called neurotransmitter imaging technique or the single scan dynamic molecular imaging technique (SDMIT). The technique uses positron emission tomography (PET) to detect, map and measure neurotransmitters released acutely during cognitive or behavioral processing in the live human brain. It allows detection of impaired neurotransmission at a very early stage of a disease process to help make an early diagnosis of a number of neurological conditions that are associated with dysregulated neurotransmission. The technique exploits the competition between a neurotransmitter and its receptor ligand for occupancy of the same receptor site.

In this technique after patients are positioned in the PET camera, a radio-labeled neurotransmitter ligand is injected intravenously and the PET data acquisition started. These data are analyzed using a receptor kinetic model to detect, map and measure neurotransmitter released dynamically in different brain areas. Patients are asked to perform a cognitive, behavioral or emotional task while in the scanner and the amount of neurotransmitter released in different brain areas measured. By comparing the amount with the data acquired in healthy control volunteers during performance of a similar task, it is determined whether release of a neurotransmitter is dysregulated in the patients and whether the dysregulation is responsible for clinical symptoms. Finding of a significant dysregulation would confirm diagnosis of many neurological conditions including, Parkinson's disease and many forms of dementia. Since this technique measures neurotransmitter released under conditions of cognitive stress, it can detect changes at a very early stage, when dysregulation of is not expressed at rest but manifests only under conditions of cognitive overload.

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Could medical cannabis be an effective treatment for Migraine? A literature Review

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Objective: This review is going to explore the potential use of Medical Cannabis in the treatment of Migraine

Introduction: Cannabis has been prescribed for headaches by physicians since the ancient Persians. Cannabis derived medications are currently used in the UK for neurological conditions such as Lennox-Gastaut syndrome and Multiple Sclerosis. The two main chemical components in cannabis are: Cannabidiol (CBD) and Tetrahydrocannabinol (THC). Recent studies have shown that these increase the endocannabinoids level (lipid-based neurotransmitters which bind to cannabinoid receptors) within the body. The endocannabinoid system is involved in the mediation of the pharmacological effects of cannabis and pain-sensation. The purpose of this presentation is to evaluate whether medical cannabis (or cannabis derived medications) could be effective treatments for migraine. Migraine is a common, headache disorder of unknown etiology. Vasodilating agents such as nitric oxide is known to be able to trigger migraine attacks.

Discussion: Studies have shown that endocannabinoid system dysfunction may be present in chronic migraine. The main theory is that reduced levels of endocannabinoids lead to increased CGRP and Nitric Oxide (NO) production leading to migraine. This is backed up by the reduced levels of certain endocannabinoids in the CSF of people with chronic migraine compared to controls. People with chronic migraine have also been shown to have increased CGRP and NO production. In terms of human clinical trials, results so far have been promising. Primarily studies have been case-report in nature, but these have given intriguing results. Not only has cannabis been reported to be effective in the abortion of migraine attacks but there is some evidence that it reduces the frequency of migraine attacks as well.

Conclusion: Medical Cannabis appears to be a promising avenue for migraine treatment.

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A case report of Myasthenia Gravis treated with Plasmapheresis

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Background: Myasthenia gravis is a neuromuscular autoimmune disorder. The most common form is muscle weakness that is not accompanied by pain, weakness is exacerbated by activity and improves when resting. Exacerbations and remissions can occur, especially in the first years of the disease. Remission rarely occurs complete or permanent.

Case Report: A 35-year-old woman was treated in the Neurology Department of RSMH due to being unable to eat and drink due to not being able to swallow slowly. The diagnosis of myasthenia is made primarily from clinical presentation, which is based on history taking and neurological physical examination and continued with additional work up. In electrophysiological examination, characteristic of myasthenia which is the rapid reduction of amplitude in CMAP during serial repetitive stimulation on peripheral nerve at frequency of 3/ second was found. Previous diagnosis have been made through ENMG with Harvey Masland positive without thymoma (normal chest CT scan). Although a definitive diagnosis is obtained by

examination of antiacetylcholine receptor antibodies, using repetitive nerve stimulation is quite specific and indicates a high likelihood that this patient is diagnosed with myasthenia gravis. Clinically, patients are categorized through the clinical classification of MGFA as Class IIIb, where the patient mainly affects the oropharyngeal muscles with a moderate weakness. During treatment the patient was given corticosteroids and antiacetylcholinesterase. The choice of corticosteroids and antiacetylcholinesterase as therapy clinically provides improvement in patients.

Conclusion: Myasthenia gravis is a fluctuating disease. Clinical repair and worsening can occur. Exacerbation of myasthenia is a general term that can be defined as an increase in the degree of weakness in the bulbar muscles, breathing, or muscles of the arms and legs. Both conditions of this crisis show almost the same clinical appearance. The choice of therapy and dosage must be adjusted to each individual's condition.

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A case involving a giant aberrant Craniocervical Arteriovenous Malformation

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Background: Spinal Cord Arteriovenous Malformations (SCAVMs) comprise about 3-4% of primary intraspinal masses and are only rarely found external to the C2-C7 cervical vertebral foramina.

Case description: A 21-year-old female presented with neck pain, and a spastic quadriparesis of 1 year's duration. The cervical MRI and 3D CT angiograms documented an arteriovenous malformation (AVM)/dural artery venous fistula (dAVF) on the right fed by multiple arteries located in the C1-2 and C5-7 foramina intervertebralis. The patient underwent a laminectomy at C5-6 where large feeding arteries extending

through the foramina of C5-6, C6-7 were double-clipped. This allowed for devascularization of the AVM and facilitated resection, while preserving the aberrant vertebral artery. The patient was discharged within one week. Two months later, she was able to ambulate to the outpatient clinic.

Conclusion: Double clipping of the two main arterial feeders at the C5-C6 and C6-C7 levels of this aberrant cervical AVM was critical to facilitate resection, while carefully preserving the aberrant vertebral artery itself.

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Adopting laughter therapy to get dosage of happy hormones to remove stress caused by being in slight pain, being depressed, being unhappy anxious or sad. Saying positive affirmations aloud changes body cell energy

Suchi Spore

Global Goodwill Ambassadors Laughter Coach, Singapore

Statement of the Problem: There is a lack of awareness about what happy hormones are, how to use positive words to feel energetic and what can be done to get happy hormones. People tend to feel unhappy for multiple reasons and neuropathic pain adds on Stress levels of not only the patient but the caregivers as well. Being in pain leads to feeling depressed and anxious in some cases.

Methodology & Theoretical Orientation: Review of Books and Research shows that getting a dosage of happy hormones will not only ease slight pain of the patient but feeling happy will also have a positive impact on the recovery of the patient. Adopting Laughter therapy and getting hormones which makes one feel good will help many to recover from Neuropathic pain /Long term sadness caused by having grief, Anger or Resentment, Depression & Anxiety.

Findings: One needs to work on his/her energies using Laughter Therapy which is a positive approach for not having

Depression & Anxiety caused by Neuropathic pain. The therapy can be used as a Holistic way to recovery.

Conclusion & Significance: The Laughter therapy which includes ways to get the dosage of happy hormones promotes overcoming Depression & Anxiety caused by Neuropathic pain, is a fun way to manage pain. Repeated sessions to be conducted to remind patients that life while having pain or during the recovery should go beyond just seeking medical and counselling help and also include rebuilding Spiritual, Physical, Emotional, Relational and Mental health. The model has been put together from for testing in many settings including hospitals, elderly homes and senior citizen centres. This is not a research book or paper. It is just an effort to demystify the help available for Depression & Anxiety caused by pain. It is an attempt to motivate and encourage people to seek help and take a simple approach to remember and work on all aspects of their recovery.

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