2014 AMERICAN NEUROPSYCHIATRIC ASSOCIATION ANNUAL MEETING ABSTRACTS

P1. Frontolimbic Neural Circuit Changes Associated With Clinical Improvement Following Transference-Focused Psychotherapy in Borderline Personality Disorder

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Background: Borderline personality disorder (BPD) is characterized by deficits in self-regulation, including impulsivity and affective instability. Transference-focused psychotherapy (TFP) is an evidence-based treatment with proven effectiveness in reducing symptoms across multiple cognitive-emotional domains in patients with BPD. In this study, longitudinal changes in neural activation patterns and predictors of treatment response were investigated using a dimensional symptom-based approach. **Methods:** A functional magnetic resonance imaging (fMRI) activation paradigm was used pre and post-TFP in patients with BPD, with statistical parametric analyses, to test hypotheses concerning the identification of frontolimbic biomarkers for clinical improvement. Using a within-subjects design, BPD subjects (N=10; mean age=27.8) were scanned pretreatment, and again after approximately one-year of TFP using a disorder-specific emotional linguistic go/no-go fMRI paradigm. **Results:** Analyses confirmed significant treatment related effects with relative increases in dorsal prefrontal cognitive control regions (dorsal anterior cingulate cortex, dorsolateral prefrontal cortex), and relative decreases in ventrolateral prefrontal and hippocampal areas following treatment. Clinical improvement in affective lability correlated positively with activity in left posterior-medial orbitofrontal cortex/ventral striatum (small-volume-corrected p value (p_{svc})=0.028); right amygdala/ parahippocampal activation correlated negatively with improvements in affective lability (p_{svc}=0.005). Pretreatment hypoactivation in the left posterior-medial orbitofrontal cortex/ventral striatum predicted improvements in affective lability (p_{svc}=0.013), and posttreatment improvements in constraint were predicted by pretreatment right anterior-dorsal anterior cingulate cortex hypoactivation (p_{svc}=0.002). **Conclusions:** Individuals with BPD whose symptoms improved following TFP demonstrated modulation of neural activity in brain regions known to be implicated in behavioral inhibition in the context of negative emotional processing.

P2. Graph Theoretical Analysis Reveals Reduced Integration of the Left Amygdala Into the Whole Brain Resting State Network in Posttraumatic Stress Disorder: A Magnetoencephalography (MEG) Study

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Background: Functional neuroimaging studies have consistently demonstrated altered activity in the amygdala associated with PTSD. Network analyses have suggested alterations in the default mode network and amygdala connectivity associated with PTSD. However, network analyses of whole brain resting state activity in PTSD have not been reported. **Objective:** The current investigation conducted network analyses of whole brain resting state activity in postdeployment veterans with and without PTSD. This project was approved by the Salisbury VAMC IRB. Human subjects' welfare was protected. Participants voluntarily provided informed consent prior to study activities. **Methods:** Brain activity was recorded using magnetoencephalography from 12 male participants (N=6 with PTSD) who were seated and resting quietly with eyes open. Source series were extracted from regions of interest as well as areas of peak activity. Individual networks were created using the weighted phase lag index and thresholded using surrogate data. **Results:** Univariate ANOVA conducted using age and education as covariates indicated participants with PTSD displayed significantly lower connection strength, degree, and core value within the left amygdala. Bivariate correlations revealed each of these outcomes was significantly negatively correlated with current PTSD symptoms. No group differences were observed at other regions of interest or in whole network metrics. **Conclusions:** The observed differences suggest the left amygdala is less integrated into the resting state network and communicates less efficiently with other brain regions. These findings suggest the left amygdala may be a particularly important area for understanding the neurobiological nature of PTSD.

P3. Sex Differences in Visuospatial Abilities are Maintained During GnRH Agonist-Induced Hypogonadism

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Background: Despite well-established sex differences in several cognitive domains (e.g. visuospatial ability), few studies in humans have distinguished hormonally-modulated differences in performance from true sex differences. **Objective:** Our primary aim was to evaluate cognitive performance in healthy men and women before and during GnRH agonist-induced hypogonadism. **Methods:** Men and women without medical or psychiatric illness were matched for IQ. Cognitive tests were performed at baseline (eugonadal) and after 4–6 weeks of GnRH agonist- induced gonadal suppression. The test batteries included measures of memory, spatial ability, verbal fluency, motor speed/dexterity, and attention/concentration. Data were analyzed with ANOVA-R. **Results:** 23 women (ages [mean±SD] 35±7 years) and 28 men (ages 29±6 years) completed the study. Significant main effects of sex (but not of either hormone condition or sex by hormone condition) were observed: men performed better than women on several visuospatial tasks (mental rotation, line orientation, embedded figures, money road map, complex figure drawing, figure completion, and porteus maze) during both eugonadism and hypogonadism [effect of sex: $F_{1,44}$ [range]= 4.5–11.4; $p< 0.05$]. No significant main or interactive effects of sex or hormone condition were observed in any other test domain. **Conclusions:** The well-documented male advantage in visuospatial performance, observed at baseline, was maintained despite the short-term suppression of gonadal function in both men and women. These findings suggest that, in humans, sex differences in visuospatial performance do not require the continued presence of circulating sex steroids.

P4. Neuroanatomical Correlates of Working Memory in Children and Adolescents: Performance versus Behavioral Rating Measures

Nazlie Faridi, Sherif Karama, Miguel Burgaleta, Alan C. Evans, Vladimir Fonov, D. Louis Collins, and Deborah P. Waber

Background: The frequent lack of correspondence between performance and behavioral rating measures of executive functions has raised questions about the validity of the observational scales. **Objective:** The aim of this study was to investigate sources of this discrepancy through correlation of volumetric and cortical thickness (CT) neuroimaging values with performance and questionnaire measures of working memory (WM) in typically developing children. **Methods:** Using longitudinal data from the NIH MRI Study of Normal Brain Development (Volumes, N=347, 54.3% female; CT, N=350, 54.6% female; age range: 6 to 16.9 years), scores on the Behavioral Rating Inventory of Executive Function (BRIEF) WM scale, Wechsler Scale of Intelligence for Children-III Digit Span (DS), and Cambridge Neuropsychological Test Battery Spatial Working Memory task (CANTAB SWM) were correlated with each other and with morphometric measurements using mixed effects linear regression models. **Results:** BRIEF WM was correlated with CANTAB SWM ($p<0.001$), but not DS. With whole brain correction, BRIEF WM was associated with CT of the posterior parahippocampal gyrus (PHG), more prominently in the left hemisphere. Performance measures of WM were unrelated to lobar volumes or CT, but were associated with volumes of hippocampus and amygdala ($p<0.004$). **Conclusions:** The known role of the PHG in contextual learning suggests that the BRIEF WM assesses context-dependent memory, potentially explaining its loose correspondence to the decontextualized performance measures. Observational scales can be useful and valid functional metrics, complementing performance measures. Labels used to characterize scales should be interpreted with caution, however.

P5. Stimulus-Value and Action-Value Learning in Patients With Frontotemporal Dementia

Mandana Modirrousta, Lesley Fellows, Brad Dickerson

Background: Patients with frontotemporal lobar degeneration, clinically known as frontotemporal dementia (FTD) are reportedly impaired in tests of reversal learning especially when they require shifting strategies based on changing stimulus-value associations. Here, we examined whether the observed deficit in reversal learning remains when the required shifting strategy is dependent upon learning action-value associations. **Methods:** Eight patients with mild to moderate behavioral variant of FTD or semantic dementia and seven demographically matched healthy controls (CTLs) were recruited. Two versions of a probabilistic reversal learning task were used. In the first task, subjects were required to compare stimuli-value to make adaptive choices and in the second test, they needed to make choices based on the value of their actions. **Results:** When compared with the CTL subjects, FTD patients, as a group, showed no deficit in the action-value reversal learning task. However, they were significantly impaired in stimulus-value learning task; they achieved lower numbers of reversals ($p<0.05$) and committed higher numbers of preservative errors ($p<0.05$). **Conclusions:** These results reveal that in mild to moderate FTD, adaptive choices that rely on action-value comparisons remain intact, however, those choices that require stimulus-value comparisons become impaired early on the course of FTD. These findings could be clinically significant in

planning the best treatment strategies for patients suffering from FTD.

P6. Identifying an Evidence Based Tool for Cognitive Screening in Psychiatric Patients: Literature Review

Vishesh Agarwal, Carissa Caban-Aleman, David Greenspan

Background: Cognitive deficits are highly prevalent in patients with severe mental illness. Routine screening for these deficits is not commonly performed. Screening tools specific to psychiatric patients have been developed in recent years but have not been well studied and limited data currently exists showing their validity in clinical practice. **Objective:** To identify and review cognitive screening instruments specific to psychiatric patients. **Methods:** Literature search using standard resources. Data showing internal consistency (IC, measured as Chronbach's alpha coefficient) and other statistical measures was obtained and reviewed. **Results:** Several screening tools were identified. Extensive batteries included Cognistat, Repeatable Battery for the Assessment of Neuropsychological Status (RBANS), Woodcock-Johnson III Test of Cognitive Abilities (WJ III COG) and Brief Assessment of Cognition in Schizophrenia (BACS). Simpler and recently studied tools were Modified Mini-Mental Status Exam (3MS), Screen for cognitive Impairment in Psychiatry (SCIP), Brief Cognitive Assessment (BCA) and Brief Cognitive Assessment Tool for Schizophrenia (B-CATS). Four studies provided data of 825 patients. In 2 samples, IC's of SCIP alone was 0.73 and 0.74, while in comparison samples IC's of SCIP (0.74, 0.79) versus B-CATS (0.55, 0.60) and IC's of 3MS (0.72) versus MMSE (0.56). **Conclusions:** Cognitive deficits are known to be present prior to illness onset and persist even after successful treatment in psychiatric patients. Evidence exists that correlates severity of cognitive deficits to functional status, physical aggression and psychosocial prognosis of patients. The existing screening tools provide some hope, but more studies need to be done to establish their usefulness.

P7. Case Report: Reversible Malignant Catatonia as Part of the Presenting Clinical Syndrome of Amyotrophic Lateral Sclerosis and Behavioral Variant Frontotemporal Dementia due to TDP-43 Positive Frontotemporal Lobar Degeneration

Joshua J. Rodgers, M.D., and Michael J. Schrift, D.O., M.A.

Background: Disordered TAR DNA-binding protein-43 (TDP-43) function can result in frontotemporal lobar degeneration (FTLD-TDP) and a spectrum of clinical syndromes including amyotrophic lateral sclerosis (ALS) and / or Behavioral Variant Frontotemporal Dementia (bvFTD). Catatonia has been associated with frontal dysfunction and catatonic features would be expected in FTLD. However, catatonic signs have not been previously reported in FTLD-TDP. **Case History:** We present a case of a 42 year-old female with insidious and progressive changes in personality and behavior – initially diagnosed as schizoaffective disorder – and subacute onset of catatonic features further exacerbated to malignant catatonia by neuroleptic treatment. Benzodiazepines and electroconvulsive therapy reversed her catatonic features but uncovered signs of bvFTD and amyotrophic lateral sclerosis (ALS). Autopsy pathology confirmed ALS and was most consistent with FTLD-TDP type C. Atrophy of the caudate and brainstem and pallor of the substantia nigra and locus coeruleus were also found. This pathology is consistent with a previously proposed model of catatonia which includes dysfunctional connectivity between orbitofrontal-prefrontal and parietal cortices, and aberrant "top-down modulation" of the caudate and other basal ganglia. **Conclusions:** The present case supports the concept that disordered TDP-43 can produce FTLD-TDP which may manifest as a clinical syndrome of bvFTD and ALS, and catatonia may be one of the presenting features. This is the first reported case of catatonic features in FTLD-TDP. The subacute onset of personality, behavioral and motoric changes should prompt further investigation into possible medical and neurologic causes before a diagnosis of an idiopathic psychiatric disorder is made.

P8. Psychogenic Non-Epileptic Seizures in an Adolescent With Asperger's Syndrome Treated to Complete Remission With Modified Cognitive Behavioral Therapy.

Joshua J. Rodgers, M.D.; Cheryl N. Carmin, Ph.D.; and Kathleen M. Kelley, M.D.

Background: Psychogenic nonepileptic seizures (PNES), a somatoform disorder, may be effectively treated with modified cognitive behavioral therapy (CBT). However, patients with Asperger's Syndrome (AS), an Autism Spectrum Disorder (ASD), exhibit impairments in social interaction and communication, and restricted repetitive and stereotyped behaviors, interests and activities, all of which may directly interfere with the administration of standard CBT. The use of CBT or other treatments for PNES, or somatoform disorders in general, in patients with ASD has not been reported previously. **Case History:** Here we present a case of a previously high-functioning 16 year-old male with AS who developed disabling PNES with comorbid somatization disorder (SD), anxiety disorder not otherwise specified, and mild depression. Weekly cognitive behavioral therapy sessions, modified to meet the specific needs of this patient with AS, resulted in complete remission of all PNES, SD, and anxiety symptoms and the restoration of the patient to his baseline high-level of functioning in less than four months. Specific modifications included the use of visual aids, imagery, role playing, and

incorporation of the patient's interests, as well as parent training and close involvement. These modifications are similar to those previously described to treat high-functioning ASD patients with comorbid anxiety disorders. **Conclusions:** This case provides preliminary evidence that modified CBT can successfully treat comorbid PNES and SD in a patient with AS. Research on the incidence, prevalence, description and treatment of somatoform disorders in persons with ASD is curiously lacking and requires further attention.

P9. Postpartum Acute Disseminated Encephalomyelitis Successfully Treated With Plasmapheresis

Lokesh Shahani, M.D., M.P.H.

Background: Acute disseminated encephalomyelitis (ADEM) is a demyelinating disease of the central nervous system that typically presents as a monophasic disorder associated with multifocal neurologic symptoms and encephalopathy. **Case History:** The author reports a 19 year old female who presented 8 weeks postpartum with altered mental status. The family reported a 10 day history of behavioral changes and ataxia leading to this presentation. MRI brain revealed extensive bilateral white matter signal abnormalities. A lumbar puncture was performed which demonstrated pleocytosis and presence of oligoclonal bands. EEG performed showed diffuse slowing indicating ongoing encephalopathy. With further negative workup, a diagnosis of ADEM was made and patient was started on high dose steroids. The patient failed to response to 1 week therapy with methylprednisolone and hence alternative options were considered. With previous institutional experience with plasmapheresis the patient was started on the same and she demonstrated favorable clinical over the next week. The patient was followed over the next 6 months where she improved with her neurological deficits and did not relapse with her encephalopathy. **Conclusions:** The author reports a unique case of steroid unresponsive postpartum ADEM which was treated successfully with plasmapheresis. Risk of an exacerbation in multiple sclerosis is increased in the first 3 months postpartum, however not much is known about postpartum ADEM. This case adds to the sparse literature of postpartum ADEM and the use of plasmapheresis as a favorable second line treatment option.

P10. Steroid Unresponsive Anti-NMDA Receptor Encephalitis During Pregnancy Successfully Treated With Plasmapheresis

Lokesh Shahani, M.D., M.P.H.

Background: Anti-NMDA receptor encephalitis is an autoimmune disorder resulting in neurologic and psychiatric symptoms. It is rare during pregnancy and treatment is extremely challenging as little data exist to guide management. **Case History:** The author reports a 26 year old female who presented in 22 weeks of gestation with 2 weeks of headache followed by bizarre behavior and grandiose delusions resulting in hospitalization. The patient was worked up for encephalitis with a CSF analysis and was found to have anti-NMDA receptor antibody in both CSF and serum. Patient was initially treated with high dose steroids for 5 days, however failed to improve clinically. At this time the CSF and serum anti-NMDA receptor antibody were repeated which failed to respond to the steroid treatment. Patient was then treated with plasmapheresis and showed clinical and serological response. Patient had a successful delivery at 37 weeks and the baby did not show any serological marker for the disease. Considering the high association of anti-NMDA receptor encephalitis with malignancy, especially ovarian teratoma; the patient was screened in her postpartum period and did not show any evidence of malignancy. **Conclusions:** The author reports a unique case which was steroid unresponsive, however was treated successfully with plasmapheresis and had a positive outcome. This case adds to the sparse literature of anti-NMDA receptor encephalitis during pregnancy and adds to the differential diagnosis of new onset psychiatric symptoms during pregnancy.

P11. Compulsions Without Obsessions: Differentiating Behavioral Variant Frontotemporal Dementia From Primary Obsessive-Compulsive Disorder

Simon Ducharme, Bradford C. Dickerson, Darin D. Dougherty, Bruce H. Price

Background: Complex rituals in behavioral variant frontotemporal dementia (bvFTD) can be indistinguishable from compulsions of obsessive-compulsive disorder (OCD). Excluding primary psychiatric disorders is required to diagnose bvFTD, but there is little guidance for clinicians. We report a case of bvFTD presenting with OCD-like compulsions, and provide practical pointers. **Case History:** A 46 year-old woman was referred for inpatient treatment of OCD. Two years earlier she had developed severe cleaning and checking rituals. A neuropsychiatric assessment was requested due to the late age of onset, absence of personal/familial neuropsychiatric history, and inability to engage in therapy.

Compulsions were typical of OCD, but she denied obsessions or anxiety. History revealed that after the onset of compulsions she became unemotional, apathetic, neglected her daughter, ate butter with a spoon, and later developed hand-rubbing stereotypies.

On exam, she was superficially cooperative, but without insight. Affect was jovial and shallow. No language abnormality, no delusions/hallucinations. MoCA 25/30, Frontal Assessment Battery 17/18. She made no mistakes on the Faux-pas test, but identified only 17/36 emotions on the Mind in the Eyes.

Neurological examination was normal except bilateral palmomental reflex.

Brain MRI showed ventromedial prefrontal, orbitofrontal, and caudate atrophy bilaterally. FDG-PET demonstrated frontotemporal and caudate hypometabolism. Normal EEG and blood tests. No *huntingtin* mutation. Patient was diagnosed with probable bvFTD. Tests for *C9ORF72/progranulin/MAPT* mutations are pending.

Conclusions: Complex OCD-like compulsions can be a presenting symptom of bvFTD. Late-onset and absence of obsessions/anxiety are clues to a neurodegenerative pathophysiology. Social cognition tests can help to identify early bvFTD, and neuroimaging is critical.

P12. A Case of Dual DBS Implantation for Parkinson's Disease and Obsessive-Compulsive Disorder

Nolan Williams, Baron Short, Alexandra Jeffery, Greg Sahlem, Suzanne Kerns, Emily Williams, Colleen Hanlon, Gonzalo Revuelta, Istvan Takacs, Mark George

Background: Deep brain stimulation (DBS) is a technique that consists of an implanted lead that provides neural-network modulation within a brain circuit(s) of interest. DBS was first utilized in movement disorders such as Parkinson's disease (PD) then later psychiatric disorders such as obsessive-compulsive disorder (OCD). There are several DBS targets for the motor symptoms of PD including the sensorimotor subthalamic nucleus (STN). OCD is characterized by a combination of intrusive thoughts along repetitive behaviors and has several DBS targets including the ventral capsule/ventral striatum (VC/VS) and the limbic STN. **Case History:** We present the case of a 61-year-old male with a 12-year history of PD s/p STN DBS and a>50-year history of OCD. The patient had a Yale-Brown Obsessive-Compulsive Scale (YBOCS) score of 32 (EXTREME) at initial assessment. Preliminary treatment strategies included changing his existing STN DBS to more limbic (ventromedial) contacts, which was ineffective. Because the STN implant was targeted for PD, his lead was placed too dorsolateral (contacting motor STN only) to be effective for OCD. The patient opted to receive a second DBS implantation specifically for OCD. After 2 months, the patient has achieved a reduction in YBOCS to 12 (MILD). **Conclusions:** This is the first report of dual DBS implants in for PD and OCD. This case demonstrates that dual DBS implantation can be safe, and illustrates the role of the limbic STN and VC/VS in OCD and facilitates discussion of the functional neuroanatomy of motor and anxiety regulation as well as DBS's putative mechanism in modulating both networks.

P13. The Challenges of Treating Catatonia in Pregnancy

Amber May

Background: There are sparse guidelines for physicians treating pregnant patients with catatonia, most of which come from case reports. This is one of the few reported cases of a pregnant patient with bipolar disorder exhibiting symptoms of psychosis and catatonia. **Case History:** The patient initially presented as an 18 year old African American female G2P1001 at 33.8 wga with a past psychiatric history of bipolar disorder who was admitted to inpatient psychiatry for suicidal ideation. The patient exhibited mood lability and bizarre behaviors, including mutism, fixed gaze, and sexual preoccupation. After receiving multiple PRNs of Haldol, the patient demonstrated waxy flexibility, abnormal posturing, and echopraxia. The CK level was 2216. The patient was emergently treated for catatonia with Ativan and IVF. Her symptoms improved and CK trended down, but each time an Ativan taper was attempted, the catatonic symptoms reemerged. ECT was proposed as a treatment option, but the patient and family were resistant. After a prolonged battle, mental health court ruled in favor of ECT treatment (s/p delivery). The patient improved drastically with symptom resolution after 8 treatments of ECT. **Conclusions:** This case raised many interesting questions, including how to fully assess for catatonic features prior to antipsychotic use, determining what treatment to use for pregnant patients with catatonia, and educating patients and families resistant to ECT. ECT may be the preferred treatment in pregnancy as there are not any known adverse fetal effects and it works more quickly and efficaciously than pharmacotherapy. As medications and maternal illness can have adverse effects on the fetus, it would be helpful to establish guidelines on the safest treatment for the pregnant patient and her fetus.

P14. Neuropsychiatric Treatment of Pediatric Intracranial Right Hemisphere Hamartoma: A Case Study

Glenda Matthews, M.D., Daniel Matthews, M.D., John Seals, M.D., Larry Fisher Ph.D., Stephanie Arsenault, LPC

Background: Pediatric intracranial hamartomas may present with a wide range of neuropsychiatric symptoms including uncontrolled rage, epilepsy, and cognitive deterioration. Behavioral symptoms are often treated with antipsychotic medication with attendant risk of obesity and subsequent metabolic syndrome, as was the situation with our patient. **Case History:** Multiple references summarized by Veendrick-Meekes et al, 2007 support the concept of intracranial or hypothalamic hamartomas presenting as a neuropsychiatric syndrome. Our patient is a six year old male referred for residential treatment during his fourth acute care psychiatric hospitalization; symptoms included extreme unpredictable explosiveness, uncontrolled aggression, irritability, and verbal threats "I'm going to get a knife and cut you". Brain MRI demonstrated an extensive deep subcortical hamartoma (9 by 7.4 by 4.9 cm) (transverse, anterior-posterior, craniocaudal) in right hemisphere with

distortion of multiple areas including limbic, frontal and hypothalamic regions. Previous medications included valproate, ziprasidone, and clonidine. Laboratory studies were consistent with metabolic syndrome.

Medications were changed to a regimen including oxcarbazepine, amantadine, clonidine, and methylphenidate, with resolution of uncontrolled aggression.

MRI, laboratory data, neuropsychological testing, and video clip(s) will be provided.

Conclusions: This case represents a giant pediatric hamartoma affecting multiple brain structures. We demonstrate that his uncontrolled rage can be stabilized with minimal use of antipsychotic medications. Pediatric psychiatric patients presenting with known neurological findings should be assessed with primary focus on the brain systems as they relate to behavioral functioning. Pharmacological agents require careful consideration. Additional case studies would aid in educating neuropsychiatrists regarding this rare neuropsychiatric syndrome.

P15. Pathological Laughter and Crying in Mood Disorders Following Traumatic Brain Injury

Durga Roy, Dingfen Han, Vani Rao

Background: Pathological laughter and crying (PLAC) are commonly seen following traumatic brain injury (TBI), yet only few studies on TBI and PLAC are available. **Objective:** Our study aims to 1) identify the occurrence of PLAC in the first year after TBI and 2) to establish the demographic and clinical correlates of PLAC. **Methods:** Subjects with first-time TBI were recruited from the acute trauma units within three months of trauma and followed at 3, 6 and 12 months after TBI, each time undergoing a comprehensive psychiatric evaluation. **Results:** Rates of PLAC at 3, 6 and 12 months after TBI were found to be 22.45%, 24.66% and 22.85% respectively. On comparing those with PLAC to those without in the first year post-TBI, the former had higher percentages of: (a) psychiatric diagnosis (97.1% versus 80.9% ; p=0.03); (b) Depression (76.5% versus 40.6%; p=0.001); (c) Mood disorder due to general medical condition (TBI) (32.4% versus 5.8%; p=0.001) and (d) Personality change (29.4% versus 8.7%; p=0.01). On univariate regression analysis, there was a statistically significant association between PLAC at 3 months and Post-TBI Anxiety disorder (p=0.001), Clinical Anxiety Scale score (p=0.009) and Hamilton Depression scale score (p=0.01) at 12 months post-TBI **Conclusions:** Post-TBI psychiatric problems in the first year post-TBI were associated with higher occurrence of PLAC. It is possible that PLAC in the early TBI period may serve as a predictor of depression and anxiety at 12 months post-TBI. However, literature begs for more studies in this area.

P16. Posttraumatic Stress Disorder is Associated With Impaired Coronary Distensibility and Extent of Coronary Atherosclerosis

Naser Ahmadi, Nutan Vaidya

Background: Impaired coronary distensibility index (CDI) is an endothelial dependent process and is associated with vulnerable plaque composition and cardiovascular mortality. But the impact of posttraumatic stress disorder (PTSD) on CDI has not been evaluated. This study investigated the relation of impaired CDI and extent of coronary atherosclerosis with PTSD. **Methods:** One hundred and six subjects (aged 63±10 years, 31% women) with (N=24) and without (N=82) PTSD underwent computed tomography angiography (CTA) and their CDI and extent of coronary atherosclerosis were assessed. CDI in left anterior descending artery (LAD) was defined as: [(Early diastole - mid diastole lumen cross section area (CSA))/ (lumen CSA in mid diastole x central pulse pressure) × 1000]. Extent of coronary atherosclerosis was defined as normal, nonobstructive (<50%luminal stenosis) and obstructive (>50%). Conditional logistic regression was employed to assess the relation of CDI, extent of coronary atherosclerosis with PTSD. **Results:** CDI was significantly lower in PTSD as compared with no-PTSD subjects (3.4±1.4 versus4.8±1.5, p=0.01) and was more prominent in women than men. After adjustment for risk factors, the relative risk of each standard deviation decrease in CDI was 43% higher in PTSD as compared with no-PTSD subjects (relative risk: 0.57, 95%CI 0.39–0.81, p=0.002). CDI was inversely associated with severity of CAD and was more prominent in PTSD than no-PTSD subjects. This association remained significant after adjustment for risk factors. **Conclusions:** PTSD is independently associated with impaired CDI and predicts the extent of coronary atherosclerosis. This highlights the need for further studies evaluating the impact of early PTSD intervention on coronary atherosclerosis

P17. Post-Traumatic Stress Disorder, Metabolic Syndrome and Mortality: the Role of Selective Serotonin Reuptake Inhibitor and Tricyclic Antidepressants

Naser Ahmadi, Rachel Yehuda, Ramin Ebrahimi, Nutan Vaidya

Background: Lifetime prevalence of combat posttraumatic stress disorder (PTSD) is 5%−20% in the United States. We recently reported a significant relation of PTSD with subclinical and cardiovascular (CV) mortality. This study investigates the effect of selective serotonin reuptake inhibitors (SSRI) and tricyclic antidepressants (TCA) on metabolic syndrome (Met-Syn) and mortality in PTSD subjects. **Method:** This study is inclusive of 15586 subjects (mean age: 58±15 years, 90% male) with (N=8999) and without PTSD (N=6587). Subjects were followed for the median of 8-years. Veterans' medical-diagnoses, pharmacotherapies, laboratories and psychological health status (major depressive disorder (MDD) versus no MDD) were evaluated using VA electronic-medical-records. Met-Syn, based on the NCEP ATP III definition, was assessed. Survival regression analyses were employed to assess the effect of SSRI and TCA on Met-Syn and mortality in PTSD subjects.

Results: The excess rate of Met-Syn was 19% and 34.8% in subjects without and with PTSD ($p<0.05$). After adjustment for age, gender and risk factors, the relative risk of Met-Syn in PTSD was 0.29 with SSRI and 0.82 with TCA, respectively. At 8-year follow-up, the mortality rate was 2.5% in no PTSD 7 no MDD, 4% in no PTSD &MDD, 13.4% in PTSD & no MDD and 13.6% in PTSD &MDD ($p<0.05$). PTSD is associated with increased risk of mortality independent of conventional risk factors and MDD ($p<0.05$). Multivariable-survival-regression analyses revealed a significant indirect association between SSRI as well as TCA and Met-Syn with increased risk of CV-morality ($p<0.05$). The risk of CV mortality was significantly less in PTSD subjects who receiving SSRI or TCA ($p<0.05$). After adjustment for risk-factors, the relative risk of death was 43% and 37% less in PTSD subjects who received SSRI and TCA, respectively ($p<0.05$). **Conclusions:** SSRI and TCA therapy is associated with favorable cardiometabolic protection effects as well as reduction of mortality in subjects with PTSD, after adjustment for age, gender, major depressive disorder and conventional risk factors.

P18. The Long-Term Clinical Outcome of Post-Traumatic Stress Disorder and Major Depressive Disorder With and Without Electroconvulsive Therapy

Naser Ahmadi, Lori Moss, Nutan Atre-Vaidya

Background: Posttraumatic stress disorder (PTSD) and major depressive disorder (MDD) are frequently coexist. Electro-convulsive therapy (ECT) is the most effective treatment for refractory major depressive disorder. This study investigated the long term clinical outcome of PTSD and MDD with and without ECT. **Methods:** This retrospective nested matched case control study is inclusive of 22164 subjects (3485 with MDD & PTSD (92 with ECT and 3393 without ECT) and 18679 without MDD & PTSD) with median follow up of 8 years. The relative risk of all-cause mortality across MDD & PTSD with and without ECT therapy as compared against those without MDD & PTSD were measured using multivariable Cox regression analyses. Medical information was obtained from electronic medical records. In a substudy, the mortality rate of subjects with MDD who received ECT (132) versus MDD with antidepressant therapy (N=2360) was measured. **Results:** During the median of 8 year of follow up, the death rate was 8% (1495/18679) in subjects without PTSD & MDD, 9.1% (12/132) in subjects with MDD who received ECT, 9.7% (9/92) in subjects with PTSD & MDD who received ECT, and 18% (612/3393) in subjects with PTSD and MDD who didn't receive ECT ($p<0.05$). Cox regression survival analyses revealed that relative risk of all-cause mortality is not significantly and statistically different in MDD & PTSD who received ECT as compared with matched cohort without PTSD & MDD (relative risk: 1.37, 95%CI 0.14–11.95, p=0.81). In contrast, the relative risk of all-cause mortality was 115% higher in PTSD & MDD without ECT treatment as compared with matched cohort without MDD & PTSD (relative risk: 2.15, 95%CI 1.96–2.35, p=0.001). The relative risk of all-cause mortality was 85% higher in PTSD & MDD without ECT treatment as compared with MDD & PTSD with ECT treatment (relative risk: 1.85, 95%CI 1.69–2.01, p=0.001), which was comparable to MDD who received ECT as compared with MDD without ECT (relative risk: 1.96, 95%CI 1.45–2.16, p=0.001). Likelihood ratio test revealed no significant difference in mortality rate of MDD with ECT versus MDD & PTSD with ECT ($p>0.05$). **Conclusions:** 1) The all-cause mortality rate of PTSD & MDD as well as MDD alone with ECT is not statistically different than individuals without PTSD & MDD, 2) A significant increase in the risk of all-cause mortality in PTSD & MDD without ECT treatment is noted, and 3) ECT treatment is associated with reduced risk of all-cause mortality in MDD & PTSD which is comparable to MDD alone group.

P19. Excess Risk of Coronary Atherosclerosis and Cardiovascular Mortality in Post-Traumatic Stress Disorder With Traumatic Brain Injury as Compared to Posttraumatic Stress Disorder Alone

Naser Ahmadi, Ramin Ebrahimi, Rachel Yehuda, Ntuan Atre-Vaidya

Background: We recently reported that posttraumatic stress disorder (PTSD) as well as traumatic brain injury are independent predictors of subclinical atherosclerosis measured by coronary artery calcium (CAC) and major adverse cardiovascular events (MACE). This study investigated the relation of PTSD with and without TBI to atherosclerotic coronary artery disease (CAD) and MACE. **Methods:** Five hundred thirty seven veterans without known CAD (58±11 years of age, 100% men) who underwent CAC scanning for clinical-indications, were followed for the median of 4-years. Veterans' medical-diagnoses and neuropsychiatric health-status (PTSD versus non-PTSD as well as TBI versus non-TBI) were evaluated using VA electronic-medical-records. Survival-regression analyses were employed to assess the association between PTSD with and without TBI and CAC as well as CV-mortality. CAC was defined as CAC>0. **Results:** CAC increased proportionally increased from without psychiatry disorder to PTSD alone to PTSD with TBI ($p<0.05$). Regression-analyses revealed that PTSD alone as well as PTSD with TBI are independent predictors of presence of CAC ($p<0.05$), in which PTSD with TBI increased likelihood of presence of CAC by 16% as compared with PTSD alone ($p=0.03$). The relative risk of CV-mortality was 2.94 in PTSD and 3.02 in PTSD with TBI ($p<0.05$). Multivariable-survival-regression analyses revealed a significant association between PTSD alone as well as PTSD with TBI and CAC with increased risk of CV-morality ($p<0.05$), which was more prominent in subjects with PTSD with TBI ($p<0.05$). After adjustment for risk-factors, relative-risk (RR) of

CV-mortality was 1.56 in subjects with PTSD and CAC score>0 and 1.83 in subjects with PTSD & TBI as compared with subjects without such disorders and CAC=0. PTSD with TBI is associated with 18% excess likelihood of MACE as compared with PTSD alone (p=0.02). The event-free survival-rate was significantly decreased from 98.4% in subjects without mental disorder and CAC=0 to 85.2% in PTSD and CAC>0, to 82.7% in PTSD & TBI and CAC>0 without PTSD (p=0.0001). **Conclusions:** PTSD with and without TBI is an independent risk factor of coronary atherosclerosis and cardiovascular mortality. Furthermore, PTSD with TBI is associated with excess risk of coronary atherosclerosis and major cardiovascular events as compared with PTSD alone.

P20. Creating a Virtual Mild TBI: Patient Conceptual Design and Initial Database Development

Mohammed Ahmed, Raghavi Sakpal, Robin Hurley, Dale-Marie Wilson, Christine Elnitsky, David Cifu, Joel Scholten, Chloe Bomberger, Katherine Taber

Background: The VA recognizes traumatic brain injury (TBI) as a priority condition for healthcare services. Variations in rates of TBI diagnosis following the VA's Comprehensive Traumatic Brain Injury Evaluation (CTBIE) indicate a possible quality gap that could impact identification and appropriate treatment. Computer-based virtual standardized patients (VSPs) are potentially highly efficient and effective tools for healthcare practice improvement. **Objective:** The objective is to create a new tool, a prototype VSP portraying a Veteran with mild TBI, that can be used to support practice improvement initiatives. **Methods:** Two working groups were formed. The Clinical group is tasked with formulating a representative recently returned combat Veteran with a history of mild TBI and populating a database with multiple versions of questions/answers (Qs/As) that cover the entire CTBIE. The Simulation group is tasked with utilizing the database and associated physical descriptions to create a draft mild TBI VSP. **Results:** The initial set of Qs/As was developed by an advanced trainee (4th year psychiatry resident), based on observation of VA clinicians at a single site. These were used to create a draft mild TBI VSP. **Conclusions:** The first stage of the project successfully produced a draft version of a mild TBI VSP. In the next stage, volunteer VA clinicians will interact with this VSP to identify areas requiring correction or expansion of Qs/As, continuing the developmental cycle until an acceptable response error rate is achieved. This will be followed by formal evaluation of clinical fidelity and usability by other VA clinicians with TBI experience.

P21. A 21-Year Old Man With ASD, Refractory Schizophrenia, Facial Dysmorphism and a Duplication of Chromosome 7q36.2 That Overlaps With DPP6

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Background: The DPP6 gene on chromosome 7q36.2 is critical for assembly and function of Kv4 potassium channels, which regulate dopaminergic neurons. Chronic administration of haloperidol upregulates DDP6 expression, and an association with tardive dyskinesia has been proposed. Knockdown causes hippocampal dendritic and cerebellar granule cell hyperexcitability.DPP6 is also implicated in neuronal plasticity, cell adhesion, synaptic morphogenesis, and craniofacial development. Loss-of-function variations have been associated with autosomal dominant intellectual disability, hyperactivity and seizures. Genomic copy number variations (CNVs) are increasingly recognized in association with major psychiatric disorders, and can provide important clues for target gene discovery. Rare variants involving DPP6 have been associated with ASD, but not schizophrenia. **Case History:** We evaluated a 21-year old man with a history of autism spectrum disorder, delayed language development and ADHD, but normal IQ. Psychosis developed at age 15 with delusions of sexual deviance, criminality and punishment, and worsened to include bizarre persecutory, referential, and reduplicative delusions. He assaulted family and staff in response to visual and command auditory hallucinations and attempted suicide twice. Catatonic features, obsessions and compulsions have been present intermittently. Psychosis was refractory to antipsychotics and ECT. On clozapine, he developed obesity, NIDDM and hypertension. Dysmorphic features include macrocephaly, hypertelorism, synophrys, high-arched palate, a Stahl ear, and hypopigmented striae over the lumbosacral area. Neurological abnormalities were restricted to saccadic intrusions, and prosectic speech. EEG showed theta dysrhythia, and MRI revealed prominent global cortical volume loss with concomitant sulcal dilatation and ventriculomegaly.

Chromosomal microarray revealed a 193 kilobase duplication of chromosome 7q36.2, overlapping the 5′ end of DPP6 by 90 kilobases.

Conclusions: We hypothesize that haploinsufficiency of DPP6 resulting from disruption at the CNV insertion point may be involved in mediating our patient's severe psychosis. This gene warrants further investigation in genetic studies of schizophrenia.

P23. Hoarding Behavior: Not Limited to OCD

Arnabh Basu

Background: Compulsive hoarding or 'excessive collecting and saving behavior, resulting in a cluttered living space and significant distress or impairment' is synonymous in DSM-IV-TR with Obsessive Compulsive Personality Disorder and Obsessive Compulsive Disorder. It is however, not limited to OCD as is documented in steadily accumulating recent and remote

literature. **Objective:** We are studying the prevalence of hoarding in adult populations in the inpatient setting and it's co-occurrence within Axis I diagnoses including, but not limited to Major Depression, Schizophrenia, Obsessive Compulsive Disorder, Bipolar Disorder and Dementia. **Methods:** After simple random sampling, 200 adults admitted to Maimonides Medical Center inpatient psychiatric units are screened for hoarding using the Hoarding Rating Scale. Those with a score of 14 or more are considered to have clinically significant hoarding and are then compared with Axis I diagnoses from current inpatient admission. Statistical significance was set for p value at 0.05 or less. **Results:** Of the 75 participants so far, a third (25) showed clinically significant hoarding. Their diagnoses included schizophrenia, bipolar disorder, anxiety and substance disorders. Preliminary analyses show that mood disorders and schizophrenia correlate with hoarding behavior and these correlations appear to trend toward significance. **Conclusions:** Our data reveal prevalence of hoarding in DSM-IV-TR Axis I conditions including mood disorders, schizophrenia, cognitive disorders and substance disorders. This indicates a need for the clinician to be mindful of the fact that hoarding manifests in many forms of mental illness and is not limited to OCD alone.

P24. Psychosis of Neurosyphilis in a Chinese Immigrant

Arnabh Basu

Background: Neurosyphilis is an insidious, progressive and destructive infection of the brain and spinal cord. It can present in any stage of syphilis but most commonly manifests in tertiary syphilis. Neurosyphilis occurred in about 30% of patients with syphilis in the preantibiotic era though current prevalence is much reduced. Patients may be asymptomatic or may have varied presentations such as neuropsychiatric symptoms, meningovascular symptoms and myelopathies such as tabes dorsalis. **Case History:** We report the case of a 68 year old Cantonese speaking Chinese female with no past psychiatric history presenting with one month of psychotic symptoms, cognitive and behavioral impairment with social withdrawal that did not respond to titration of antipsychotics. No evidence of delirium was noted. RPR tested mildly positive at 1:2 and FTA-Abs testing was mildly reactive. CT head and MRI findings revealed incidental but nonspecific findings. Infectious Disease consultation recommended treatment of neurosyphilis with penicillin after patient and family refused CSF testing. HIV testing was negative. Remarkable response to penicillin and concurrent antipsychotic treatment was noted within 2 weeks with resolution of psychosis, behavioral symptoms and gross improvement in cognition to near baseline. **Conclusions:** Writers draw attention to worldwide increase in incidence of syphilis, primarily in urban areas, highlighting influx of migrant populations and comorbid HIV as potential contributors. Though rare, neuropsychiatric manifestations of syphilis must remain on the differential of patients with no past psychiatric history with recent onset of personality changes, behavioral, cognitive and perceptual disturbances.

P25. An Elderly Woman With Rapidly Fluctuating Psychotic Symptoms and Frontal Meningioma

Jeffery Bennett, Mohsin Khan

Background: This case describes psychotic symptomatology and other neurocognitive difficulties arising for the first time over the course of several months and requiring inpatient psychiatric evaluation and management in an elderly woman previously diagnosed with an orbitomedial frontal meningioma. Notable in this patient's presentation is the rapidly fluctuating quality of her symptoms, the challenges to her proper diagnosis and treatment, and the array of neuropsychiatric interventions considered. **Case History:** The patient is an 81 year old widowed white female admitted after she presented with irritability, memory impairment, impulsivity, and repeated claims to the local police that children are bothering her by surrounding her house in the dark at night. She was diagnosed in 1972 with a falcine meningioma but had never had psychosis. The hospital course was notable for her rapidly vacillating psychotic symptoms including auditory hallucinosis, self-referentiality, and irritability. Neuroimaging revealed a midline frontal falcine mass with surrounding vasogenic edema consistent with a meningioma. EEG revealed no ictal activity but frontal slowing more predominant on the right. After failure with quetiapine treatment, a short course of dexamethasone and aripiprazole resulted in improvement of her irritability and psychotic symptoms. Hunter first described a case series of brain tumors initially presenting for psychiatric inpatient treatment. **Conclusions:** This case is notable for rapidly fluctuating quality of her symptoms, the challenges to her proper diagnosis and treatment, and the array of neuropsychiatric interventions considered

P26. Excessive Writing in a Man With Traumatic Brain Injury: Case Report and Discussion of Hypergraphia

Jeffery Bennett, Aghaegbulam Uga

Background: Excessive and repetitive writing has been described as a behavioral component of a range of neuropsychiatric conditions including temporal lobe epilepsy, mania, and traumatic head injury and is known under different monikers such as hypergraphia, automatic writing, compulsive writing, and others. These distinctions are based on characteristics of the language content and penmanship. **Case History:** The patient is a 63 year old married white male who was well until he suffered closed head injury at the age of 36 years when the plane he was piloting crashed. He remained in a coma for 5

weeks and for the following year underwent physical and speech therapy with residual retrograde and anterograde amnesia for the event of about 7 days. He had no seizures. He was treated with various psychotropic agents for a mood syndrome composed of affective lability, pressured speech with flight of ideas, and expansive, unrealistic philosophical and political ideas. He did not endorse hallucinations, suicidal or homicidal intention, was not aggressive, had preserved ADL's and socialized at local restaurants. He developed excessive writing activity between 5 to 9 hours daily early in his course. The symbolic content, language, and style of his writing activity will be presented along with available neuroimaging and other studies. **Conclusions:** This case serves as a vehicle for review and discussion of the cerebral regional affiliation and associated pathology of various types of hypergraphia, and physiological views of creativity.

P27. Non-Convulsive Status Epilepticus in a Woman With Psychosis and Epilepsy Treated With Clozapine: An EEG and Video Evidence Presentation

Jeffery Bennett, Asha Dusad

Background: Non-Convulsive Status Epilepticus (NCSE) may present in association with a variety of underlying disorders and can be mistaken for idiopathic forms of chronic psychosis. Fluctuating attention and concentration, signs and symptoms of encephalopathy, and refractoriness to treatment with antipsychotic medications can be clues to its presence. Prompt recognition, evaluation, and treatment are important to prevent sequela of constant seizure activity and correction of diagnostic imprecision. After a search of the literature, this case appears to be the first reported of NCSE in a patient treated with clozapine. **Case History:** A 46 year old female with a longstanding diagnosis of Schizoaffective Disorder and hearing loss presented with confusion, complaints of "machine" noises and voice hallucinations, but normal affective range, but was noted to have myoclonic movements, fluctuating ability to attend during routine interview and examination. She was treated with clozapine and levetiracetam for a history of seizures which were reportedly generalized but also "smaller" seizures at times. NCSE was suspected and an EEG demonstrated epileptiform activity. Oral phenytoin was administered and video-EEG monitoring initiated. Video-recording of pre- and posttreatment interview and examination demonstrate characteristic findings. **Conclusions:** Treatment with clozapine in patients with chronic psychotic disorders and epilepsy is uncommon given the known epileptogenic risk. The clinical challenges of NCSE include recognition and neurological evaluation with attention to medication interaction and toxicity as well as underlying causes.

P30. Co-Occurrence of Intellectual Disability and Mood Disorders: More Than Just "Bad Brain?"

Katherine Brownlowe, M.D.

Background: Comorbid mood disorders and intellectual disability (ID) has been frequently under-diagnosed but is the focus of greater clinical attention. Mood disorders are challenging to diagnose due to language and other cognitive impairments associated with ID. Treatment of mood disorders may decrease behavioral problems in this population. **Objective:** To assess the literature for the reported frequency of mood disorders associated with intellectual disability of any cause, as well as determine differing rates of mood disorders within different etiologies of intellectual disability. **Methods:** We searched the PUBMED database (October 2013) with search terms including "autism," "intellectual disability," "Down Syndrome," and "Prader-Willi Syndrome." Each disorder term was paired with "depression," "bipolar," and "mood disorders." Articles not adding new information, single case reports and papers focusing on subjects other than mood disorders with intellectual disability were excluded. **Results:** The frequency of mood disorders in ID was reported in a range from 3%−16%, and a greater frequency was reported in older cohorts. Down Syndrome demonstrated a lower frequency of mood disorders, while Prader-Willi Syndrome demonstrated a higher frequency, with even greater frequency in the maternal uniparental disomy subtype. **Conclusions:** Occurrence of mood disorders in patients with ID is significant but variable. Some demonstrate a greater frequency of co-occurrence than others, which may suggest differences in cortical-striatal circuit impairment in differing illnesses. These disorders are a treatment target to improve quality of life and daily functioning in both people with ID as well as their caregivers and families.

P31. IMPOSTER! The Capgras Delusion and Caregiver Burden

Elizabeth DeGrush, Ankur Butala, Sheldon Benjamin

Background: The Capgras Delusion, a form of a delusional misidentification syndrome in which a person believes that a friend or family member has been replaced by an identical-looking imposter, which may be a source of added caregiver burden. Caregiver burden is well studied in dementia populations, but little is known about the burden of the Capgras delusion on those closest to its sufferers. We review two cases of Capgras delusions and the associated caregiver burden using the Caregiver Burden Scale. **Case Histories:** Two women presented to the UMass Neuropsychiatry Clinic presenting with delusional beliefs that their family members were imposters. Both had, associated, periods of agitations around this belief. One had a history ependymoma, hydrocephalus and right hemisphere stroke, and the other with four years progressive memory decline and word-finding problems. MRI revealed asymmetric right hemisphere pathology in one and diffuse atrophy in the other. A variety of interventions, including antipsychotics and inhaled cannabinoids were used to control agitation.

Data from the caregiver burden scale administered to both families indicated moderate distress. In both cases family members attempted to manage the patient's behavior with homegrown interventions. Caregivers were exhausted by this burden and somewhat relieved by the education provided by their neuropsychiatrists.

Conclusions: Capgras Delusion is an uncommon manifestation of psychosis in many neuropsychiatric syndromes. Data suggests right hemisphere damage may lead to this phenomenon. Caregiver burden and distress are seldom discussed in the Capgras literature. Neuropsychiatrists should routinely inquire about caregiver burden when evaluating individuals with delusional misidentification syndromes.

P32. Dextromethorphan/Quinidine in the Treatment of Catatonia: A Case Series

Jason P. Caplan, M.D.

Background: Catatonia has been hypothesized to be the result of a relative imbalance between glutamate and GABA with the implication of a hyperglutamatergic and hypoGABAergic state. Current first line treatment of catatonia involves the use of a GABAergic substance, typically benzodiazepines, in an attempt to redress this imbalance. Other reports have suggested benefit from the NMDA antagonist memantine in catatonia. The combination formulation dextromethorphan/quinidine has been demonstrated to have antiglutamatergic activity through NMDA antagonism and interaction with the sigma−1 receptor at both pre- and postsynaptic locations. **Case History:** A case series of three patients with varying underlying illness but all presenting with catatonia will be described. Each of these patients experienced limited benefit from benzodiazepines vis-à-vis their symptoms of catatonia or their treatment with benzodiazepines was limited by adverse effects (e.g. respiratory depression). The addition of the antiglutamatergic formulation of dextropmethorphan/quinidine produced marked improvement in each of these cases including the complete lysis of catatonia. **Conclusions:** Current treatment strategies for catatonia are often limited by adverse effects (benzodiazepines) and availability (electroconvulsive therapy). Dextromethorphan/quinidine may represent a novel treatment approach for catatonia that is readily available and associated with a limited array of adverse effects.

P33. Neuropsychiatric and Seizure Outcomes in Autoimmune Limbic Encephalitis.

Rani A. Sarkis, Zeina N. Chemali

Background: Autoimmune limbic encephalitis (ALE) is an inflammatory condition usually presenting with seizures, memory loss, and behavioral changes[1,2] **Objective:** The current study aims to characterize the long term seizure and neuropsychiatric outcomes after the initial diagnosis and treatment phase. **Methods:** A retrospective chart review of all patients evaluated at Massachusetts General Hospital, over a 10 year period, carrying a diagnosis of encephalitis was performed. Patients with noninfectious etiologies, and evidence of limbic involvement were selected. **Results:** 755 charts were reviewed, 22 patients fulfilled the study criteria. The average age at presentation was 50.9 years (22–82). Presenting symptoms were new onset seizures (75%), behavioral changes as psychosis and agitation (40%), and memory difficulties (35%). Six patients were diagnosed with status epilepticus upon admission. An underlying antibody was identified in 60%. Two patients died in hospital. Mean average in-hospital stay 16.6 day (8–46). Average follow up duration was 2.6 years. Within the follow up period, 7 patients required readmission due to behavioral changes or seizures. At their final follow up visit, four patients carried the diagnosis of mood disorders, two had anxiety disorders, and two were diagnosed with impulse control disorder. Seizures persisted in 53% of patients predominantly consisting of medically refractory simple partial seizures. 35% of the study sample could not return to a meaningful employment. **Conclusions:** Additional understanding of ALE is crucial as its potential long term sequel include development of refractory seizures, new onset psychiatric disorders, and loss of employment.

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P34. Frontotemporal Dementia Following Decades of Bipolar Disorder: Prodrome, Risk Factor, or Coincidence?

Joseph Cooper, Vijay Gorrepati, Amy Yang, Michael Marcangelo

Background: Bipolar Disorder (BD) is associated with executive dysfunction even in a euthymic state. Mania is associated with disinhibition and possible frontal lobe dysfunction. A genetic link between BD and frontotemporal dementia (FTD) has been suggested. Other chronic psychiatric or learning disorders have been implicated as risk factors for, or prodromal states of, neurodegenerative disorders, perhaps because of shared neurobiological etiology. Here, we describe a case of FTD following the onset of BD in midlife. **Case History:** The patient is a 66 year-old female with a history of BD diagnosed at age 41 who, at the age of 63, began to have a notable decline in cognition. Neuropsychological testing in 2010 showed impaired executive function with relative sparing of memory consolidation and visuospatial skills. Progression involved increasing apathy, inappropriate behavior and interpersonal interactions, confusion, paranoid ideation, word finding difficulties and semantic paraphasias. MRI showed significant

atrophy in bilateral temporal and orbitofrontal cortices with significant progression from 2010–2013. Repeat neuropsychological testing in 2013 found profound deficits across all cognitive domains. **Conclusions:** Dysfunction of frontal cortical networks in BD may mimic FTD, leading to diagnostic challenges. In our case, BD had a relatively late onset and was associated with functional and cognitive decline over 25 years that recently accelerated. Recent genetic studies implicating C9ORF72 mutations in both illnesses provide a possible link, although the neurobiology remains unclear. Patients with BD who experience cognitive decline with prominent executive and language dysfunction may have a single condition with phenotypic variation over time.

P35. Excited Catatonia With a Normal Video EEG: a Case of Anti-NMDA Receptor Encephalitis

Colin Pesyna, Laura Benson, Maureen Lacy, Joseph Cooper

Background: Catatonia is a syndrome that can manifest in a variety of neuropsychiatric conditions including anti-NMDA receptor encephalitis (anti-NMDARE). EEG changes, most commonly focal or generalized slowing, have been proposed as (1) a screen for an organic etiology of catatonia, (2) a marker of the catatonic state regardless of etiology, and (3) a typical finding in anti-NMDARE. We present a case of excited catatonia due to anti-NMDARE presenting with a normal video EEG. **Case History:** A 33 year-old woman without neuropsychiatric history suffered a precipitous cognitive and behavioral decline after prodromal urinary tract infection. Bizarre behavior, repetitive utterances, and an episode of possible syncope or nonconvulsive seizure lead to a 3-week hospital stay. Workup revealed no explanation, and her symptoms worsened with haloperidol. She was transferred with a working diagnosis of conversion disorder for video EEG monitoring. Video EEG was normal, with a background rate of 9–10Hz, despite a clinical picture of excited catatonia with marked unresponsiveness. Lorazepam caused sedation and mild symptomatic improvement. Repeat lumbar puncture revealed lymphocytic pleocytosis, and mental status improved with steroids. Anti-NMDAR antibodies and a 1cm ovarian teratoma were found. Her clinical state improved markedly with plasmaphoresis and teratoma removal. Neurocognitive testing documented residual memory and executive difficulties. **Conclusions:** Our case adds to the building literature that catatonia may be a relatively common feature of anti-NMDARE. In evaluation of catatonia, a normal EEG is an uncommon finding regardless of etiology, but does not exclude the possibility of organic brain disease.

P36. A Unique Differential Diagnosis in a Case of Abnormal Motor Movements

Adriana de Julio, M.D., M.S.P.H., Sarah Hutton, M.D., Sarah Berth, Ph.D., Geoffrey Levin, M.D.

Background: Psychogenic nonepileptic seizure (PNES) is now the term used to describe pseudoseizures, which is a subtype of conversion disorder. It is now know that up to 16% of PNES patients have documented epileptic seizures. This case is of a woman who began having abnormal motor movements while undergoing treatment for depression and alcohol withdrawal. **Case History:** A 48-year old woman was admitted for alcohol detoxification. The patient reported that for one month she had been severely depressed and had been drinking alcohol heavily. On Hospital Day 5 she was witnessed to shake from head to toe. She had no change in consciousness or postictal confusion. A differential diagnosis included: alcohol withdrawal seizure, factitious disorder, simple partial seizure, epilepsia partialis continua, and psychogenic nonepileptic seizures. The patient was successfully detoxified from alcohol and transferred to the psychiatric unit. Video-EEG was ordered as is the gold standard in diagnosing PNES[2,3]. Treatment with an SSRI, in this case Escitalopram, was initiated[4]. The Psychiatry Team worked carefully with the patient and her family to communicate clearly the diagnosis of PNES[9]. Lastly, Cognitive Behavioral Therapy, which is an evidence based in the treatment of Conversion Disorders, was initiated. **Conclusions:** Commonly patient with PNES have underlying psychiatric issues that must also be treated. Patients with PNES benefit from psychiatric treatment even when they have medically explained symptoms[5]. Treatment teams must devise a strategy to communicate with the patient the diagnosis of PNES effectively.

P37. Phenomenology and Neuroimaging Correlates of a Permanent Autoscopy Case

Yazmin de la Garza-Neme, Ricardo Saracco-Alvarez, Gloria Adame-Ocampo, Fatima Meza-Urzua, Bruno Estañol-Vidal

Background: Autoscopy is the experience of seeing one´s body in extrapersonal space. Autoscopic phenomena have been reported in neurological and psychiatric diseases. These phenomena are thought to relate to the disintegration of visual propioceptive, tactile and vestibular modalities, and have been linked to dysfunction in the region of the temporoparietal junction. We describe a case with no other diagnosis but the presence of permanent autoscopy with unique phenomenology and its neuroimaging correlates. **Case History:** A previously healthy 28 y/o man, right handed, who developed a permanent autoscopic hallucination 11 years ago. He has no psychiatric or neurological disorder diagnosed to date. He sees a colorful static see-through image of himself, exclusively in the right visual hemifield. This image becomes clearer and vivid at times, accompanied of anxiety and other sensory perceptual symptoms. The neurological examination was normal. The MRI showed focal left parietal atrophy. Brain SPECT CT showed hipoperfusion in the following areas: right temporoparietal junction, bilateral hippocampus and bilateral

occipital lobe predominantly right. Increase left frontal perfusion. Serial EEG recordings and an 8 hr Video EEG were normal. **Conclusions:** The hipoperfusion seen in the right temporoparietooccipital areas suggests some grade of deafferentation in the right visual pathway with no clinical manifestation of contralateral hemianopsia. The autoscopic phenomena in this patient is manifested exclusively in the right eye hemifield, contrary to the hipoperfusion findings in the SPECT CT. We try to explain these manifestations as an hodological connectivity increase between specialized regions in a compensatory manner to contralateral alterations.

P38. Association Between Patient Characteristics and Florbetapir F18 PET Amyloid Neuroimaging at Baseline in Patients With Mild or Moderate Alzheimer's Dementia

Elisabeth Degenhardt, Michael Witte, Michael Case, Peng Yu, David Henley, Helen Hochstetler, Deborah DSouza, Paula Trzepacz

Background: Clinical diagnosis of Alzheimer's disease (AD) is challenging (sensitivity of clinical criteria for possible and probable AD: 71%−87%; specificity 44.3%−70.8% versus autopsy). **Objective:** We compared baseline clinical characteristics in AD patients with and without evidence of amyloid plaque using florbetapir F18-PET (FBP-PET), to find variables that could identify patients mistakenly diagnosed with AD. **Methods:** Patients≥55 years old with clinically diagnosed mild or moderate AD dementia who had FBP-PET (N=390/2052) from two identical solanezumab treatment trials were pooled and categorized as FBP-PET positive or negative. Baseline characteristics, cognitive and functional measures were compared. FBP-PET groups were defined by standardized uptake value ratio (SUVR) cutoff=1.1. **Results:** 87 (22.4%) patients (56.3% male versus 43.7% female; p=0.0045) were FBP-PET negative. Mean age and education were similar between groups. Mean scores for the FBP-PET negative group indicated less impairment than the FBP-PET positive group on ADAS-Cog14 (28.2±12.1 versus 35.2±10.7; p<0.0001) and MMSE (22.2±3.1 versus 20.5±3.0; p<0.0001). No differences were found in ADCS-ADL, CDR, NPI, or GDS. A smaller proportion of FBP-PET negative patients had the ApoE-ε4 allele (22.62% versus 62.85%; p<0.001). Years of education (r=0.1835; p=0.0003), but not age (r=0.0388; p=0.4449) correlated significantly with SUVR. **Conclusions:** 22.4% of patients had negative FBP-PET results, inconsistent with an AD diagnosis despite meeting clinical AD criteria and having cognitive and functional impairment consistent with dementia. No baseline variable reliably differentiated the subgroup of patients without amyloid deposition. Results of amyloid neuroimaging can aid in the diagnosis of dementia otherwise attributable to AD.

P39. Ophtalmologic Delusional Parasitosis in Parkinson's Disease

Sol Durand-Arias, Yazmi De la Garza-Neme

Background: Delusional infestation (DI) is characterized by the fixed belief to be infested by small creatures or inanimate particles without medical evidence for this, and abnormal cutaneous sensations explained by these imaginary pathogens. DI has been described in several diseases. As for pathophysiology and neural basis of DI, some evidence suggest a pivotal role of dopamine and published cases secondary to localized brain lesions led to a hypothetical dysfunction in a fronto-striato-thalamo-parietal network. We describe a unique case of Parkinson's Disease (PD) and ophtalmologic DI. **Case History:** A 62-year-old male, with a 5 year diagnosis of PD with poor treatment adherence presented a depressive episode two years before admission. He was hospitalized because he started referring pareidolias, visual and somatic hallucinations and the delirious idea of parasitosis, described as a Loa-loa nematode that moved around the right eye and sometimes exited across the lacrimal and toward the nose bones. He developed conjunctivitis and the ophtalmologic evaluation showed bilateral open angle glaucoma. He was given treatment with low dosis of clozapine with remission of the psychotic symptoms. **Conclusions:** The presence of psychotic symptoms in PD are considered a neuropsychiatric complication that may have many clinical presentations, being DI a rare symptom in PD. In this case we discuss the pathophysiology implications of PD, dopaminergic drugs, concomitant depressive disorder and ophtalmologic pathology in the development of a DI.

P40. MoCA versus MMSE in Mild Cognitive Impairment and Early-Stage Alzheimer's disease

Paula Trzepacz, Helen Hochstetler, Brett Walker, Shufang Wang, Michael Witte, Andrew J. Saykin; on behalf of the ADNI Investigators

Background: More sensitive brief, multidomain cognitive tests than the Mini-Mental State Exam (MMSE) are needed for earlier detection of Alzheimer's disease (AD) predementia stages. **Objective:** We assessed relationships between the MMSE and Montreal Cognitive Assessment (MoCA) with special focus on detection of early stages of cognitive impairment. We also evaluated cut-off values for the MoCA in defining MCI, including the earliest stage when scores may overlap with those considered normal. **Methods:** We analyzed 283 healthy control (HC), 422 MCI and 133 AD dementia cases from the Alzheimer's Disease Neuroimaging Initiative (ADNI) to compare MoCA (cut-offs of≥17, ≥19 and≥23) and MMSE (cut-off≥24) for capturing MCI cases using descriptive statistics, scatterplots and Pearson correlations. **Results:** Scales correlated better for dementia (r=0.84) than HC (r=0.42) and MCI (r=0.57) cases. MoCA≥23 was too high to capture enough

MCI cases, though it captured fewest dementia cases. MoCA (≥17) captured 99.7% HC and 96.9% MCI, whereas the MMSE (≥24) captured 99.7% HC and 98.1% MCI cases. More scored 28 to 30 on the MMSE (71.8%) than MoCA (17.0%). **Conclusions:** Based on this analysis, the MMSE appeared to have a greater ceiling effect for detection of MCI than the MoCA. Consistent with its difficulty, MoCA scores in MCI cases appeared to have a wider distribution than the MMSE, suggesting that MoCA (cut-off≥17) may be more useful than the MMSE to detect a range of MCI cases. Additional memory and functional measures will help identify at-risk HC and dementia cases, respectively, scoring≥17.

P41. The Insular Cortex: Structure, Function, and Neuropsychiatric Implications

Robert D. Shura, Psy.D., Robin A. Hurley, M.D., Katherine H. Taber, Ph.D.

Background: Although it comprises only about 2% of cortical surface area, a recent surge in research suggests that the insular cortex is involved in a wide range of functional circuits. There is growing evidence that the insula is neuropsychiatrically important, especially in relation to dysfunctions in higher order cognitive, emotional, and social networks. **Objective:** To synthesize current research on the structure and function of the insular cortex. **Method:** Meta-analyses, reviews, imaging literature, and clinical research were reviewed and synthesized to create structural, functional, and circuit-based visual diagrams that elucidate the roles of the insula. Characteristics of the insula examined include the functional organization, cytoarchitecture, proposed role of von Economo neurons, principal functional circuits, and illustrative neuropsychiatric conditions. **Results:** The central insular sulcus is continuous with the Rolandic fissure and divides the insula into anterior and posterior lobules. The posterior lobule is involved in multiple sensory roles, including visceral, pain, and vestibular functions. The anterior insula is involved in motor functions, complex cognitive processes, and socio-emotional aspects of behavior. The most anterior aspect of the insula contains the von Economo neurons (also found in the anterior cingulate cortex), which are thought to be related to complex social functions. Additionally, the insula is implicated in multiple neuropsychiatric conditions including frontotemporal neurocognitive disorders, psychiatric disorders, and addictions. **Conclusions:** A recent increase of research on the insula highlights its complex and extensive role in important neuropsychiatric functions. This work presents a synthesis of the structure, function, and clinical implications of the insular cortex.

P42. A Case of Limbic Encephalitis: a Case Initially Misdiagnosed as a Primary Psychiatric Disorder.

Neil Brahmbhatt, Thomas Heinrich, Rajni Aulakh, Suraj Singh

Background: Paraneoplastic limbic encephalitis (PLE) is a rare clinical entity that can present with myriad of neuropsychiatric signs and symptoms; including personality changes, psychiatric symptoms and nonfocal neurological signs. The presentation of PLE may be insidious; occurring gradually over days, weeks, or even months. It is most commonly associated with a malignancy and the pathogenesis is thought to be autoimmune and involves antigens shared by the tumor and neuronal cells in the mesial temporal and limbic structures. The case of PLE presented highlights how the initial presentation of PLE may mimic a primary psychiatric illness and lead to misdiagnosis and delayed treatment. **Case History:** A 35 year old male was admitted to a psychiatric facility with anxiety, depression, and suicidal ideation. He was eventually transferred to a medical hospital for a thorough neurologic work-up secondary to treatment resistance and worsening memory. A physical examination revealed a testicular mass. Subsequent biopsy followed by a radical orchiectomy revealed a regressed germ cell tumor. A MRI revealed mild T2 signal abnormalities involving bilateral anteromedial temporal lobes. CSF was positive for anti-Ma1 and Ma2 antibodies. IVIG and plasma exchange resulted in minimal improvement. Repeat MRI showed new hyperintensities involving left gyrus rectus, anteroinferior medial frontal lobes bilaterally and bilateral anterior cingulate gyrus. Trials of rituximab and cyclophosphamide are being considered. **Conclusions:** PLE presents as a diagnostic challenge. An elevated index of suspicion in the setting of new and/or atypical onset neuropsychiatric symptoms may lead to early recognition, treatment, and improved outcome.

P43. A Retrospective Multidimensional Comparison of Referred DSM-IV Autism and Asperger Prepubertal Children: Do They Qualify Under DSM-5?

Drake D. Duane, M.S., M.D., Amanda Stadel, Mimi Tokyuama, Diana Rayes

Background: The replacement of DSM IV by DSM 5 criteria for Autism has raised concerns. **Objective:** To contrast a sample of referred children with Autism (Aut) and Asperger (Asp) by DSM IV criteria and to determine if they qualify under DSM 5. **Methods:** 10 Aut and 10 Asp Caucasian children 7 to 12 years of age (mean 10.3) were contrasted on gender, handedness, eye color, height/weight, quantitative neurologic examination; family, pre,perinatal, and developmental history; parental age; Achenbach Child Behavior Checklist (ACBCL), Children's Depression Inventory (CDI), DSM IV Rating Scale; four academic measures, seven neuropsychological tests, EEG and comorbid diagnoses. **Results:**

Aut=Asp: Gender (2 females); handedness; eye color; maternal/paternal age (30/35); family hx anxiety, substance abuse, bipolar; delayed motor milestones; percentile height/weight; elevated ACBCL scores obsessiveness, inattention, socialization; elevated DSM inattention; low CDI scores; frequency arithmetic

disorder; impaired visual memory and attention; frequency of abnormal EEG.

Aut>Asp: Two adopted; 2 in vitro fertilization; 4 family hx Autism−3 of these one of a twin pair; family hx Learning Disability/ADD; perinatal stress, delayed language milestones; DSM hyperactivity; reduced reading rate/comprehension; slow picture naming, impaired AVLT learning/recall, rightward Letter Cancellation errors; increased right DTRs, absolute slow speed both feet; EEG abnormalities left sided; comorbid language, attention and slow writing speed disorders.

Asp>Aut: Family hx OCD, depression, seizure disorder, dementia; elevated DSM impulsivity; slow rate Letter Cancellation and Matching Figures; increased left DTRs, slower left foot; EEG abnormalities right sided; comorbid anxiety, OCD.

Conclusions: Although Aut and Asp share many similarities, they also have distinctive differences with greater heterogeneity in possible etiology in Aut and strong ties to OCD in Asp with some possible CNS lateralization differences. All 20 children still qualify under DSM 5, but the nonuniformity of this group of disorders should not be neglected.

P44. Emotional Decision-Making, Utilitarianism, and Ability to Consent in a Patient With Meningioma Involving the Ventromedial Prefrontal Cortex

Michael Schrift, D.O. M.A.; Brian P. Gomoll, M.D.; Rebecca Cho, M.D.

Background: Ventromedial prefrontal cortex damage has been shown to correlate with increased utilitarianism and decreased emotional influence on decision-making. This could have important implications for determining ability to consent in patients with VMPFC damage. **Case History:** The neuropsychiatry service was consulted to evaluate decisional capacity in a 46 year old man with large frontal meningioma resulting in blindness and mass effect. He demonstrated emotional blunting with some insight into his decrease in emotions. He was evaluated and was found capable to consent for the operation; however, he requested that his brother become his postoperative surrogate decision-maker instead of his mother, because his brother would murder him if he were incapacitated by "buying a handgun and shooting [him.]" He felt that he should choose someone who would murder him as he would be a burden; he was unable to see any negative consequences to this action on himself or his brother. Due to his reasoning, which was directly influenced by emotional blunting from the tumor, he was found to be incapable of making an informed choice of decision-maker. **Conclusions:** This case demonstrates both the decision-specific nature of capacity and the effects of VMPFC lesions on decision-making. In this particular case, he was able to make an informed decision about his treatment but incapable of choosing a healthcare proxy, as the emotional factors needed to assign a proxy were greater than those required to consent for surgery. This case demonstrates that different cognitive and emotional factors are needed for different decisions.

P45. Malignant Catatonia and Status Epilepticus of Unclear Origin Treated With Electroconvulsive Therapy: Retrospective Case Study and Discussion

Brian P. Gomoll, M.D.; Melissa Jones, M.D.; Michael J. Schrift, D.O., M.A.

Background: Both catatonia and nonconvulsive status epilepticus are under-recognized and may be mislabeled as primary psychiatric disorders. We present a case from 2007 in which both conditions are present and discuss diagnostic concerns and treatment. **Case History:** A 40-year-old Hispanic woman with recent episode of psychotic depression was transferred from an outside psychiatric facility for evaluation of stupor and rhythmic orobuccal and truncal movements after treatment with antipsychotic medications. She was found to be in status epilepticus with ongoing left central and frontal discharges. She was treated for status epilepticus, with resolution of discharges but little change in clinical status. MRI, CSF, cancer screenings, and bloodwork were negative; vitals fluctuated. Neuropsychiatry was consulted and recognized catatonia; lorazepam resulted in only slight change, and ECT was administered with rapid improvement, with normal EEG and mental status at follow-up. Videos of patient before and after treatment will be presented. Anti-NMDA receptor encephalitis may account for this patient's symptoms, though this diagnosis was not well known at the time. Discussion of treatment of catatonia in epilepsy, ECT in patients with epilepsy, and recognition and treatment will be included. **Conclusions:** Catatonia and nonconvulsive status epilepticus may present with neuropsychiatric symptoms. This case demonstrates the difficulty in ascertaining if epilepsy resulted in catatonia, malignant catatonia resulted from neuroleptic treatment of nonconvulsive status symptoms, or if a single condition accounted for both. This case demonstrates the multiple etiologies of these conditions, and demonstrates that timely recognition, work-up, and appropriate treatment of catatonia and epilepsy are essential.

P47. Is this Patient Depressed? - Neuropsychiatric Differential Diagnosis of the Psychomotor Slowed Patient.

Colin Harrington, Davin Quinn

Consultation to a clinical question of depression is common in the general medical hospital, and is often generated by the appearance of environmental withdrawal and psychomotor slowing. Fuller evaluation of these patients often leads to the diagnosis of alternate, nondepression neuropsychiatric conditions.

We present a series of seven cases encountered on our neuropsychiatry consultation service over a five-week period to

which we were consulted regarding a question of depression. In each case the patient was best described as "psychomotor slowed". Eventual diagnoses in this group included hypoactive delirium, severe drug-induced Parkinsonism, thalamic stroke-based apathy syndrome, subacute encephalopathy in a patient with multiple unexplained nonmotor strokes, catatonia in an encephalopathic patient with an epidural abcess, nonconvulsive status epilepticus, central pontine myelinolysis in a malnourished alcohol dependent woman who had presented with complicated alcohol withdrawal, seizure, and severe hyponatremia, and motor neuron disease in a schizophrenic man with a recent history of catatonia.

Many of these patients carried premorbid psychiatric diagnoses. In only two of these cases was an active depressive syndrome diagnosed as comorbid with the primary condition driving the psychomotor slowed presentation.

Psychomotor slowing can be caused by multiple neuropsychiatric processes. Behavioral observations alone are insufficient for diagnosis and require focused neuropsychiatric evaluation. Careful consideration of premorbid psychiatric history as a red flag versus a red herring is important in the diagnostic assessment of the psychomotor slowed patient.

Broader consideration of the potential causes of psychomotor slowing in these patients led to more targeted testing, proper diagnosis, and significant changes in treatment.

P48. ALS-FTD Misidentified as Wernicke-Korsakoff Syndrome: Clinical and Treatment Implications

Aaron Hauptman, Erica Garcia-Pittman, Jean Dunham, Carlos Tirado

Combined amyotrophic lateral sclerosis-frontotemporal dementia (ALS-FTD) consists of a range of symptoms that seem to defy what either disorder entails when seen in isolation. As a result, patients are often misidentified, particularly as having a primary psychiatric disorder. We present a 52 year old right-handed Caucasian male who presented for inpatient medically-supervised alcohol detoxification under a previous misdiagnosis of alcohol-dependence and Wernicke-Korsakoff syndrome. On further examination, he was determined instead to have ALS-FTD which had been symptomatic for at least two years prior to hospitalization.

This case demonstrates the need for increased awareness of ALS-FTD symptom clusters. In this case, the patient had been misidentified resulting in improper treatment in the context of considerable neuropsychiatric symptoms including motor abnormalities, cognitive decline and escalating risky behaviors. He and his wife had been preparing to separate, in large part due to misattribution of his symptoms to alcohol and behavioral dysregulation rather than to severe neurodegenerative illness. By properly identifying the disease, treatment options could be optimized, appropriate long-term care discussed and proper follow-up arranged. Importantly, it allowed for their relationship to change dramatically in the context of increased awareness of his disorder, giving them important time together.

MRI, neuropsychiatric questionnaires and clinical data will be presented exemplifying details of classic ALS-FTD presentation. Particular focus will be placed on contrasts between combined ALS-FTD and the respective individual disorders. Because of the interesting instance of mistaken Wernicke-Korsakoff syndrome diagnosis, overlap of symptoms with that disorder will also be discussed.

P52. Early-Onset Alzheimer's Dementia: a PET scan study

Taranjett Jolly

Background: Alzheimer disease is a neurodegenerative disorder of uncertain cause and pathogenesis that primarily affects older adults. The main clinical manifestations of Alzheimer disease are selective memory impairment and dementia. Neuropsychological changes can begin with subtle personality changes including apathy, social disengagement, and disinhibition. Alzheimer's disease is generally seen in patients over the age of 60. The inherited forms of Alzheimer's disease, all autosomal dominant, can routinely present before the age of 65, and frequently in the fifth decade or earlier. FDG-PET scan may be useful in distinguishing Alzheimer's disease from frontotemporal dementia. **Case History:** Here we present a case report of a 49 years old female who presented with progressive memory loss for past one and a half years. She had been forgetting addresses and had accidents at home because of forgetfulness. Patient did not report any strokes, head injuries or hypertension. Her daughter also reported depression with apathy in patient for past few months. Patient scored 8/30 on Montreal Cognitive Scale. Diagnosis of Alzheimer's disease was confirmed with PET scan study, which showed significant abnormalities in left and right parietal and right and left temporal regions. **Conclusions:** This case report is a good example of how timely neuroimaging techniques can help in diagnosing a patient much early in the course of disease progression. Neuropsychiatric symptoms are common in Alzheimer's disease, apathy may be a manifestation of superimposed depression, which can be difficult to diagnose in the setting of dementia. The definitive diagnosis of Alzheimer's requires histopathologic examination, therefore lab studies and imaging techniques have an important role in diagnosing alzheimer's and other dementias at an early stage. FDG-PET, fMRI, perfusion MRI, or perfusion single photon emission computed tomography (SPECT) reveals distinct regions of low metabolism and hypoperfusion in Alzheimer's dementia.

P55. Iv Ketamine Efficacy in the Outpatient Clinic for Treatment-Resistant Mood Disorders

John Claude Krusz

46 patients were referred for treatment of resistant mood disorders. All had tried medication, ECT and/or rtMS without success. They were infused with IV ketamine, over an average of 20

hours (8–96hrs), with oximetry monitoring. Hamilton A and D rating prior to and after treatment with ketamine were used to rate efficacy. 42 of 46 (91%) improved in depression and anxiety scores. Average duration of improvement was 10.3 +/− 3.3 days with significant reduction in Ham A & D scores (26 +/− 3.4 to 11.7 +/− 4.1, and 29.8 +/− 3.9 to 13.7 +/− 2.9. p<. 01, two-tailed). We conclude that IV ketamine is a rapid and effective treatment for treatment-resistant mood disorders and should be utilized and also studied in a double-blind fashion.

P56. ANPA Membership Committee Past Members Survey: How Can ANPA Improve?

Margo Lauterbach, M.D., Elizabeth DeGrush D.O., Sheldon Benjamin, M.D.

Background: ANPA aspires to improve the lives of people with disorders at the interface of psychiatry and neurology via advocacy, research and educational efforts. ANPA's Membership committee supports this mission, boosts membership, and helps retain members. Factors important to organizational longevity include: involving trainees and early career members, cultivating member engagement, organizing quality activities, and fostering professional advancement. Balance must be maintained between membership growth and accommodating members. Like many medical organizations ANPA struggles to do more with fewer resources. Financial and time pressures are major determinants of physician commitment to professional organizations. **Objective:** The ANPA membership committee sought to understand the reason(s) behind member attrition and identify aspects of the organization in need of improvement. **Methods:** Resigned regular, trainee and student past ANPA members from 1999–2011 were surveyed via Survey Monkey. Surveys were sent out by 3-year intervals (2011–2009, 2008–2006, etc…). Data were analyzed quantitatively (percentages) and qualitatively via open-ended questions/answers. **Results:** Of 122 respondents, 20% were international members, 64% were>50 years old, and 73% were physicians. Cost was the primary reason for not renewing membership (66% indicating membership cost and 26% annual meeting cost). 36% were unable to attend the annual meeting due to calendar conflicts and 24% indicated unmet professional needs. Over 20% of respondents agreed to be contacted by committee members to discuss ANPA. **Conclusions:** Creative means of offering affordable membership, curtailing costs, and strategically deciding upon meeting timing/locale are important for membership retention. As an organization, we should be sensitive to the needs of international, retired and current members.

P57. A Case of Cerebellar Vermian Hypoplasia Presenting With Spontaneous Confabulation and Erotomania

Daniel J Lee, Joshua J Rodgers, Michael J Schrift

Background: Patients with congenital or acquired lesions of the cerebellar vermis may exhibit dysregulated motor control, known as ataxia, as well as dysregulated control of impulses, affect, attention, and personality as part of the Cerebellar Cognitive Affective Syndrome (CCAS). However, spontaneous confabulation and erotomania have so far not been described in association with vermian lesions. **Case History:** The patient is a 21 year old female who was admitted for worsening psychotic features, impulsivity, and suicidal ideation. MRI of the brain demonstrated hypoplasia of the cerebellar vermis. While her motor exam was unrevealing for overt signs of ataxia, she demonstrated several neuropsychiatric features consistent with CCAS. During her hospitalization, she developed obsessional and delusional attachments to peers on the ward. Furthermore, the patient produced confabulations spontaneously and floridly. **Discussion:** Spontaneous confabulation is associated with lesions of the orbitofrontal cortex—a region thought to be crucial for the suppression of irrelevant memories. Cerebrocerebellar connections between the vermis and the orbitofrontal cortex raise the possibility of an important relationship between the cerebellum and one's ability to distinguish between relevant and irrelevant memories. In addition there is evidence for a vermian role in regulating primary emotions and sexual behavior. Tract studies and electrophysiologic experiments link the vermis to the limbic system and might explain the patient's erotomanic presentation. The case discussed here involves anatomic and physiologic accounts of delusion and confabulation and argues for a still greater role for the cerebellum in regulating behavior and cognition.

P58. Inpatient Physical Medicine and Rehabilitation Treatment for Functional Neurological Disorder in Two U.S. Veterans

Eryn Lonnquist, David Coons, Hal Wortzel

Background: Functional Neurological Disorder (FND) or Conversion Disorder may occur in up to 35% of referrals to academic outpatient neurology clinics but little literature exists regarding treatment. Case series exist for treatment using physical medicine and rehabilitation (PM&R) services, but no such literature exists regarding treatment for United States Veterans. **Case History:** Case 1 is a Veteran with sudden onset of vision loss, gait impairment, memory loss, facial twitching, tremors, and speech difficulties after a syncopal episode. Case 2 is a Veteran with recurrent episodes of tremors, confusion, right-sided weakness, and right leg paralysis requiring a wheelchair for one year. Medical evaluation was normal for each. Both Veterans were admitted to PM&R for 2 and 4 weeks respectively with a team of physicians, psychologists, physical, occupational, and speech therapists. Both patients increased in functionality significantly during their stays with Case 1 being able to ambulate without a cane and with no astasia-abasia and Case 2 being able to use

a front-wheel walker and stand to prepare meals. **Conclusions:** Only a handful of studies have been done to investigate PM&R for FND, and no prior cases have been reported in Veterans to our knowledge. Outcomes in FND are notoriously poor for patients with symptoms lasting longer than six months. Early and intensive intervention has been suggested as a potential intervention that may improve long-term outcomes.

P60. Rationale for Hypothermia as Treatment of Acute Methamphetamine Intoxication: Putting Ice on Ice

Natalie Erbs, David Kasick, Jason Caplan, Curtis McKnight

Background: Methamphetamine (METH) is a commonly used synthetic drug that produces euphoria and central nervous system (CNS) neurotoxicity. METH intoxication damages dopaminergic (DA) neurons and can lead to hallucinations, seizures, violence, and agitated delirium. METH intoxication also produces tachycardia, rhabdomylysis, cardiac ischemia and hyperthermia. In animal models, hyperthermia is thought to be a cause of DA cell death in METH intoxicated states. Although in animals dopaminergic blocking agents including haloperidol are neuroprotective of DA neurons in acute intoxication, haloperidol has been shown to be excitotoxic to GABA cells in the substantia nigra pars reticulate in other studies. Given the mixed effects of haloperidol, additional research into alternative treatments is need. **Case History:** We propose that hypothermia may be used as treatment for acute METH intoxication. There is theoretical support in rat models that hypothermia may decrease some of the neurotoxic damage done to the dopaminergic brain fibers. The pathophysiology of therapeutic hypothermia is complex and not fully understood, but it is believed to reduce cerebral metabolism, decrease glutamate release, attenuate free oxygen radical production, and attenuate and/or reverse the ischemic depolarization of the CNS. Since these effects have all been demonstrated as mechanisms of the neurotoxic effects of METH, hypothermia has theoretical evidence for benefit as a treatment. **Conclusions:** We propose that hypothermia may be a safe and effective treatment of METH intoxication.

P61. Influence of Psychiatric Comorbidities in Migraineurs in the Emergency Department: A Cross Sectional Analysis

Mia Minen, Kaloyan Tanev

Background: There is a strong association between migraine and psychiatric comorbidity, however, the influence of psychiatric comorbidity on the frequency of migraineurs' healthcare visits, the procedures they receive and their treatment in the ED is not well described. **Objectives:** To examine how psychiatric comorbidities in migraineurs in the ED affect healthcare utilization and treatment tendencies. **Methods:** This is a cross sectional analysis of 2,872 patients identified from the Partners Database who visited our ED over a ten year period and were given a principal diagnosis of migraine. **Results:** Compared with migraineurs without a psychiatric comorbidity, migraineurs with a psychiatric comorbidity had approximately 3 times more ED visits, 6 times more inpatient hospital stays and 4 times more outpatient visits. Migraineurs with psychiatric comorbidities received opiates in the ED more often than migraineurs without psychiatric comorbidities ($p<0.0001$). They were also more likely to receive triptans in the ED ($p=0.012$). Moreover, migraineurs with psychiatric disorders were more likely to have a CT of the head [RR 1.42 (95% CI=1.28, 1.56, $p<0.001$)] or a MRI of the brain [RR 1.53 (95% CI=1.33, 1.76, $p<0.001$)] than patients without a psychiatric disorder. **Conclusions:** Migraineurs with psychiatric comorbidity who visit the ED have different healthcare utilization tendencies than migraineurs without psychiatric comorbidity who visit the ED. This is seen in the frequency of ED visits, outpatient visits and inpatient stays, in the medications administered to them and in the radiology tests they undergo. Further investigation is needed to understand such differences.

P62. Clinical and Forensic Applications of the SOBIN (Subtle Organic Brain Inventory of Neppe) With the INSET (Inventory of Neppe of Symptoms of Epilepsy and the Temporal Lobe)

Vernon M Neppe M.D., Ph.D., F.R.S.(SAf), BN&N.P., DFAPA

Background: The SOBIN is the only available clinical neuropsychiatric inventory screening for soft organic type symptoms and learning disabilities. **History:** Developed in 2002 by Vernon Neppe at the Pacific Neuropsychiatric Institute, where it's used extensively, the SOBIN integrates five major directions:

Primarily, eliciting soft organic brain pathology which is particularly important in neuropsychiatric cases evaluating subtle difficulties like prosopagnosia and dysproccia.

Secondly, monitoring changes including after significant pathology like head injury or encephalitis.

Thirdly, establishing subjective cognitive areas of special strengths.

Fourthly, eliciting and monitoring ordinal severity fluctuations in higher brain function.

Fifthly, obtaining ancillary baseline data ranging from laterality to personality to symptom triggers, additional to the INSET.

By scoring 74 main items plus 24 ancillary items, the SOBIN compares past and of severity degrees, proving critical in both clinical and forensic contexts, including patients with questionable organic or brain pathology or neurological conditions with possible psychiatric elements, previous head injury

or encephalitis or tumor or other brain insult or possible seizure disorders or paroxsymal neurobehavioral disorders. **Conclusions:** The SOBIN screens in a consistent and standardized manner such symptoms also ensuring there are no indicators of invalid responses so as to be able to better interpret neuropsychiatric tests properly. The SOBIN's neuropsychiatric use and applications are discussed.

P63. The Neppe Narcolepsy Questionnaire (NNQ): Clinical Applications and HLA Context

Vernon M. Neppe M.D., Ph.D., F.R.S.(SAf), BN&N.P., DFAPA

Background: Diagnosis of Narcolepsy is sometimes difficult as presentations of narcolepsy may be protean. The classical test, the MSLT (Multiple Sleep Latency Test), does not often produce a positive yield. Vernon Neppe developed the Neppe Narcolepsy Questionnaire (NNQ) in 1983 at Cornell, further refined it over several years including at the University of Washington. **Report:** This NNQ modification has been used regularly clinically at the Pacific Neuropsychiatric Institute since 1992 for all patients in which the diagnosis of Narcolepsy or a narcoleptic syndrome is queried. Patients complete this open answer questionnaire in Microsoft Word. The NNQ covers the areas of nocturnal sleep (12 items), Daytime sleepiness (15 items plus subitems), Sleep paralysis (9+ items), Cataplexy (10 items), Diplopia (5 items), Automatic Behavior (16 items with subitems), Perceptions (20+items), Dreams (18+items), Nocturnal Sleep Disorders (12 items) and Ego-Boundaries (12 items with subitems). It has proven very useful in screening for symptoms of Narcolepsy and has always been combined with the HLA Narcolepsy screen and HLA-DS15 (DRB1*15), HLA-DQ6 (DQA1*0102/DQB1*0602). **Conclusions:** The NNQ together with HLA have proven very useful. The utility is well documented on response to appropriate medications particularly wakefulness agents, such as Modafinil. Usage of these criteria differentiate out two groups: A Narcolepsy diagnostic group, and a Primary Dyssomnia syndrome. Interestingly, a high proportion of these patients have temporolimbic instability and also require anticonvulsants.

P64. Clinical Applications of the STRAW Severity and Frequency Examination Measures of Involuntary Movements in Tardive Dyskinesia and Movement Disorders

Vernon M. Neppe M.D., Ph.D., F.R.S.(SAf), BN&N.P., DFAPA

Background: Vernon Neppe developed the STRAW, as an objective clinical examination differentiating subtle differences in tardive dyskinesia because adequate reliable measures were unavailable. First used in the landmark case of high-dose buspirone in Tardive Dyskinesia (TD) in 1989, this standardized administered movement disorder evaluation uniquely uses a *10-point* scale multiplying *frequency* (proportionately timed component) *and severity* scores. **Report:** It is clinically routinely used at the Pacific Neuropsychiatric Institute on patients receiving neuroleptics, or for those at risk for any movement disorders, obtaining baseline and follow-up measures of change with medications and other alleviating or accentuating phenomena.

STRAW is an acronym: Five *activity* evaluations each out of 10 make up 50 (the TRAW) loaded equally with scores at *rest* (50) (the S of the STRAW) (total 100)

"S": sitting at rest (converted to 50)

Activity each 10:

"T": tapping

"R": reading

"A": arms outstretched

"W" is for writing,

also *"W" for walking (gait).*

Activating procedures also evaluate power, gait, tone, resistance, mouth opening and tongue protrusion.

Conclusions: STRAW scores are compared with the also routinely performed AIMS, SCT-Hans and Simpson Angus Examinations. The most severe of head, axial skeleton, and limbs (0–10 severity) are closely followed for extraneous movements incorporating many features of the AIMS, SCT-Hans and Simpson-Angus. The STRAW appears superior to these in TD evaluation.

P65. Psychometric Properties of the Bush Francis Catatonia Rating Scale

Kathy Niu, JoEllen Wilson, Stephan Heckers, Stephen Levine

Background: The organization of the signs of catatonia into dimensions is unclear, and little is known about how much information the Bush Francis Catatonia Rating Scale (BFCRS) assesses. **Objective:** The current study aims to use traditional and modern psychometrics to explore the dimensions of the BFCRS and the amount of information provided by the BFCRS in a catatonic sample. **Methods:** A retrospective chart review of patients from psychiatric and medical hospitals was conducted. Catatonia was identified in 300 patients with a Bush Francis Catatonia Screening Instrument (BFCSI) score of 2 or more signs. Principal component analysis (PCA) was used to group BFCRS signs into dimensions. Based on these groupings, Item Response Theory (IRT) was computed to estimate parameters that inform item utility and scale reliability **Results:** PCA identified three components interpretable as "Increased Psychomotor Activity," "Decreased Psychomotor Activity," and "Abnormal Psychomotor Activity." IRT analysis shows that the items Excitement, Immobility/Stupor, Waxy Flexibility were

the most representative of each factor, respectively. The BFCRS has many redundant items, and the "frequent" response option could be combined with either "occasional" or "constant" without loss of much information. Finally, the scale as a whole has low reliability at low severities of catatonia, but good reliability at moderate-high severity of catatonia. **Conclusions:** The BFCRS assessment of catatonia has three dimensions roughly organized by quality of the motor signs. A new or improved rating scale is required to better identify infrequent and subtle forms of catatonia.

P66. Catatonia in Anti-NMDA-encephalitis: Case Reports and Review of the Literature

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Background: There are reports of catatonia resulting from an anti-N-methyl-d-aspartate receptor (anti-NMDAR) encephalitis associated with ovarian teratomas, but few reports of catatonia resulting from other autoimmune encephalitides. **Objective:** To evaluate a particular association of catatonia in an anti-NMDAR encephalitis. **Methods:** The available records during 2011–2013 from Khon Kaen University, Thailand, were reviewed for patients with catatonia and encephalitis. We also conducted a literature search of all well-characterized patients with catatonia and a possible autoimmune encephalitis. **Results:** We describe four female patients with the acute or subacute onsets of psychiatric symptoms and catatonia (mutism and waxy flexibility) plus other symptoms characteristic of anti NMDAR encephalitis (language disintegration, dyskinesia and amnesia). All patients were tested for anti-NMDAR antibodies, and only one was positive. None of the patients had ovarian teratoma. All patients were treated with corticosteroid, two with improvement. Two patients benefited from electroconvulsive-therapy (ECT). All patients gradually recovered from cognitive impairment. Three patients required antipsychotic and mood stabilizers during recovery. The review of the literature disclosed 15 reports of catatonia as part of the clinical picture of anti-NMDAR encephalitis; 2 others had a paraneoplastic encephalitis and 3 had an unspecified encephalitis lethargica. **Conclusions:** Patients with catatonia whose clinical progression is consistent with encephalitis, may have anti-NMDAR encephalitis, even without ovarian teratoma. Corticosteroid and ECT may be useful, even in patients who did not manifest anti-NMDAR antibody. We conclude that, patients, particularly young women, presenting with the acute onset of neuropsychiatric symptoms and catatonia should be considered for the possibility of anti-NMDAR encephalitis.

P67. Mesial Temporal Sclerosis as a Potential Risk Factor for Catatonia: a Case Report.

Amy R. Corcoran, M.D., Lawren VandeVrede, B.S., Eric D. Gausche, M.D., Michael J. Schrift, D.O., M.A., Matthew Burns, B.S., Johnathan Coleman, M.D.

Background: Mesial temporal sclerosis (MTS) is a well-known cause of temporal lobe epilepsy (TLE). However, its potential role in the production of catatonia is unknown. The authors report a case of a patient with MTS who developed catatonia that required treatment with electroconvulsive therapy. **Case History:** KB is a 53-year-old Caucasian female with a past medical history significant for moderate mental retardation, pervasive developmental disorder NOS, and mesial temporal sclerosis who presented for evaluation and treatment of symptoms of catatonia. The patient had gradually declined in functioning for the three years preceding admission. In the final three months of her illness, the family documented a more precipitous decline in her clinical status characterized by marked negativism, mutism, shuffling gait, grimacing and posturing. An outside physician attempted to treat her with aripiprazole, which the family reported worsened her condition. Outside MRI showed the presence of mesial temporal sclerosis of the right hippocampus without other abnormalities. Two EEGs showed no slowing or epileptiform activity. She was brought to neuropsychiatric clinic, where she was diagnosed with catatonia and admitted to psychiatry. She had a partial response to lorazepam, and she was then given electroconvulsive therapy, allowing discharge of the patient home with resolution of the catatonia after fourteen bilateral treatments. **Conclusions:** Although MTS has been associated with TLE and psychosis, catatonia in patients with MTS has not been reported. The neuronal network damage from MTS may lie on a spectrum with TLE being only one severe clinical presentation and progressive catatonia being another.

P68. Neuropsychiatric Management of bvFTD

Dr. Donald Eknoyan, Dr. Mario Mendez

Background: Behavioral variant frontotemporal dementia (bvFTD) is an early-onset dementia characterized by symptoms of progressive behavioral impairment and executive dysfunction. Effective management of neuropsychiatric symptoms poses a significant challenge. Management of symptoms frequently involves pharmacologic interventions of which there is limited evidence. Pharmacologic interventions have focused on selective serotonin reuptake inhibitors (SSRIs), atypical antipsychotics, anticonvulsants/mood stabilizers, acetylcholinesterase inhibitors, and glutamate NMDA receptor antagonists. **Objective:** The purpose of this exhibit is to review and synthesize the evidence based treatment of the neuropsychiatric symptoms of bvFTD and create teaching materials that present the data. **Methods:** The relevant scientific literature was reviewed and synthesized for information related to the management of

neuropsychiatric symptoms of bvFTD. Particular focus will be given to using psychotropic medications in managing the challenging behavioral and neuropsychiatric symptoms. **Results:** To date, there are no FDA approved treatments for the neuropsychiatric symptoms of bvFTD. There is limited evidence for the use of SSRIs, atypical antipsychotics, anticonvulsants, acetylcholinesterase inhibitors, and glutamate NMDA receptor antagonists. **Conclusions:** Pharmacologic management of bvFTD is challenging due to no FDA approved treatments and limited evidence based treatments. Pharmacologic treatment focuses on symptom management. The use of any pharmacologic intervention requires consideration of the benefits and risks of potential treatments with close monitoring for response and side effects.

P69. Electroconvulsive Therapy-Induced Dissociation of Parkinsonism and Depression From Core Features of Normal Pressure Hydrocephalus

Emily N. Williams, Nolan R. Williams, Jonathan M. Snipes, E. Baron Short, Gonzalo J. Revuelta, Mark S. George

Introduction: Normal pressure hydrocephalus (NPH) most commonly presents with the classic triad of dementia, gait disturbance, and urinary incontinence. Occasionally, NPH can present with additional features such as associated parkinsonism and/or a depression-like state. In addition to its efficacy in treating depression, electroconvulsive therapy (ECT) has been shown to have efficacy in treating parkinsonism. **Case:** We present the case of a 77-year-old male with a history of "Parkinson's disease (PD)" who was assessed and found to have normal pressure hydrocephalus with associated parkinsonism, not idiopathic PD. This change in diagnosis was made immediately prior to receiving an acute course of right unilateral ultrabrief pulse ECT for his severe depression-like state. After this acute ECT course, the patient was noted to have resolution of parkinsonism (bradykinesia and rigidity) along with resolution of his depression, leaving only the core symptoms of NPH. The patient subsequently received a ventriculoperitoneal (VP) shunt and his core features of NPH resolved. The patient did not have re-emergence of parkinsonism after VP shunt placement confirming that he did not have idiopathic PD. **Discussion:** This is the first case where RULUBPECT has been used in parkinsonism related to NPH and demonstrates proof of concept that ECT is efficacious at treating multiple causes of parkinsonism, including when caused by a mechanical reason (NPH). We discuss the functional neuroanatomy of mood and motor regulation, their overlap, and ECT's putative shared mechanism on both networks.

P70. Neuroversion: Using Electroconvulsive Therapy as a Bridge to Deep Brain Stimulation Implantation

Nolan Williams, Greg Sahlem, Baron Short, Alexandra Jeffery, Carol Burns, Emily Williams, Istvan Takacs, Gonzalo Revuelta, Mark George

Background: Parkinson's disease (PD) is a movement disorder with significant neuropsychiatric comorbidities that occasionally require the use of electroconvulsive therapy (ECT). Despite the effectiveness of ECT in treating neuropsychiatric symptoms of PD, clinicians are reluctant to use ECT in patients with DBS implantations for fear of damaging the device, as well as cognitive side effects. Recent studies have shown that right unilateral ultrabrief pulse (RULUBP) ECT has a favorable cognitive side effect profile compared with traditional methods yet has never been reported in PD patients with DBS electrodes. **Case Histories:** We present a case series of 3 patients with a history of Parkinson's disease that all presented with psychiatric decompensation immediately prior to planned DBS surgery. All three patients had DBS electrode(s) in place at the time of ECT treatment and ECT was utilized in a novel method to 'bridge' these individuals to either contralateral DBS surgery (2 cases) or implantation of additional rescue leads (1 case). All three individuals experienced symptom resolution (psychosis and/or depression and/or anxiety) at the completion of the acute course of ECT, without cognitive side effects. While surgery was postponed initially in 2 of the 3 individuals, 'neuroversion' converted all three individuals to psychiatrically stable surgical candidates. **Conclusions:** This case series not only illustrates that RULUBP ECT can be utilized in patients with DBS electrodes, but also illustrates that this intervention can be utilized as a neuromodulatory 'bridge' where nonoperative surgical candidates with unstable psychiatric symptoms can be converted to operative candidates in a manner similar to electrical cardioversion.

P71. Stimulating Frontostriatal Circuitry in Parkinson's Disease

Nolan R. Williams, E. Baron Short, Alexandra Jeffery, Emily N. Williams, Greg L. Sahlem, Colleen A. Hanlon, Jeffrey E. Korte, Gonzalo J. Revuelta, Mark S. George

Background: Parkinson's disease (PD) is a movement disorder frequently associated with neuropsychiatric dysfunction. Despite electroconvulsive therapy's (ECT) efficacy in treating PD, clinicians have been reluctant to use traditional ECT due to its cognitive side-effects. Recent studies in treatment-resistant depression (TRD) have demonstrated that right unilateral ultrabrief pulse (RULUBP) ECT has a favorable cognitive side-effect profile. **Objective:** We sought to assess patients with a diagnosis of PD along with TRD/psychosis in the motoric (UPDRS-Unified Parkinson's Disease Rating Scale), cognitive (MOCA-Montreal Cognitive Assessment), and neuropsychiatric (AS-Apathy Scale, GDS-Geriatric Depression Scale, HAMD-17-Hamilton Depression Scale, SAPS-Scale for the Assessment of Positive Symptoms) domains prior to and after an acute course of RULUBPECT. **Methods:** We assessed change from baseline (BL) to immediate posttreatment (IPT) and one month posttreatment (OMPT). Due to sample size (N=5), we

chose a nominal value of p=0.10 to denote a statistical significance, and used the Wilcoxon signed-rank test (WSRT) to compare matched values at different time-points for each participant. **Results:** All measures (except MOCA) dropped dramatically acutely and long-term. Mean values from baseline to posttreatment decreased from 33.8 to 8.6(HAMD-17), 60.2 to 23.6(AS), 23.2 to 9.0(GDS), 4.2 to 0.2(SSI), 18.6 to 1.6(SAPS), and 31.4 to 11.75(UPDRS) while MOCA increased from 26.2 to 27.6. Based on WSRT, improvements were statistically significant for HAMD-17, AS, and GDS scales at IPT (p=0.06). UPDRS, SSI, and SAPS trended toward statistical significance. **Conclusions:** This open label study suggests that RULUBPECT is safe, and is likely efficacious in treating multiple domains of PD.

P.72 Comorbid Schizophrenia and Parkinson's Disease; A Pharmacologic Quandry

Aghaegbulam Uga, Trinadha Pilla, Shreedhar Kulkarni, Malati Pilla, Vineka Heeramun, Jeffrey Bennett

Background: Extrapyramidal symptoms frequently occur in patients with schizophrenia, most of which are attributed to drug-induced parkinsonism. However, cases of comorbid schizophrenia and idiopathic Parkinson's disease have been reported. Finding proper pharmacological treatment to control both disorders is a dilemma. **Case History:** We report 44-year-old female diagnosed with schizophrenia, paranoid type, according to DSM IV*TR*, 8-years after a traumatic brain injury. She was stabilized on risperidone 2mg daily in the first hospital admission. Four years later, a diagnosis of parkinsonism was made based on symptoms of masked face, bradykinesia, rigidity, resting tremor, and sialorrhea followed by unsteady shuffling gait. The diagnosis of idiopathic Parkinson's disease was confirmed by the neurologist. The patient declined Tc99m TRODAT SPECT. MRI of the brain at different times was unremarkable except for prominent cisterna magna. She was started on Carbidopa/Levodopa which improved her parkinsonian symptoms but exacerbated her psychosis. The dilemma of psychopharmacological treatment to control both disorders was encountered. Based on the review of literature, Quetiapine and Aripiprazole were tried during subsequent hospitalizations with worsening of her parkinsonian symptoms. All medications were discontinued at some point resulting in deterioration of psychotic and parkinsonian symptoms. The patient was eventually stabilized on Olanzapine 10mg and Carbidopa/Levodopa 25/100mg daily after she declined Clozapine therapy. **Conclusions:** This case report illustrates the dilemma of treating a patient with schizophrenia and comorbid idiopathic Parkinson's disease. While trials from published case reports recommends the use of quetiapine, aripiprazole or clozapine, this patient responded to olanzapine emphasizing individualized care approach.

P73. Sudden Onset of Aphasia: Is it Topiramate or Dementia?

Aghaegbulam Uga, Sheila Thomas, Sarah Shah, Shreedhar Kulkarni, Trinadha Pilla, Chenelle Joseph, Jeffery Bennett

Background: Topiramate is a safe and effective antiepileptic drug that has been found useful as a mood stabilizer in patients with bipolar disorders. However, case reports are emerging that connect topiramate to language disturbances and reversible nonfluent aphasia. **Case History:** We report a 73-year-old female with normal premorbid cognitive function who developed depressive symptoms and sought treatment. A diagnosis of bipolar disorder was made and she was started on topiramate titrated to 400mg daily dose, which she took for a period of one year. Two weeks after starting topiramate, she noticed difficulty expressing herself, described as worsening of her ability to form a phrase or use words in a sentence. Two years after discontinuation of topiramate, the patient has experienced only partial recovery of expressive language deficits. Mental status examination showed reduced fluency in speech production as well as naming difficulties, but normal comprehension and repetition. MRI showed mild white matter changes and atrophy, otherwise normal. Neuropsychological evaluation was undertaken. While a review of literature suggests complete recovery to normal language within six weeks of discontinuation of topiramate, this was not the case with this patient. **Conclusions:** This patient is probably the first reported case of topamirate induced nonfluent aphasia in this particular age group. Whether this is due exclusively to topiramate, other pathology, or age related cognitive impairment is yet to be determined. Could prolonged use of topiramate have resulted in irreversible language deficits?

P74. Depression, APOEe4, and the Risk of Incident Mild Cognitive Impairment: A Population-based Study

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Background: Clinical samples have suggested that depression is a risk factor for subsequent MCI. However, population-based studies are needed. **Objective:** To determine, among cognitively normal participants, whether baseline depression is associated with the risk of incident MCI.
Methods: The Mayo Clinic Study of Aging is a population-based prospective study of aging and MCI in Olmsted County, Minnesota. We used a stratified random sampling to assemble a cohort of 2,004 cognitively normal subjects, aged 70–89, that had completed the Beck Depression Inventory (BDI-II) at baseline and had at least 1 follow-up visit. The diagnosis of MCI was made by an expert consensus panel based on published

criteria. Depression was measured using the (BDI- II). We used a cut-off score of≥13 to define exposure to depression. We calculated hazard ratios (HR) and 95% confidence intervals (95% CI) using the cox proportional hazards model, with age as a time scale, adjusting for sex, education, and medical comorbidity (as measure by Charlson's comorbidity index).
Results: We followed the cohort forward in time for a median of 4.3 years. Baseline depression (HR=1.75; 95% CI, 1.33–2.30) significantly predicted incident MCI, and the risk is more elevated among persons with both depression and APOEe4 (HR=2.33; 95% CI, 1.36–3.99). **Conclusions:** Among persons who were cognitively normal at baseline, depression predicted incident MCI. This implies that promotion of emotional health may be necessary to prevent MCI among community dwelling elderly persons.

P75. Behavioral and Cognitive Late Effects in a Case of Cerebellar Tumor: a Challenge to Conventional Treatment

Mary Reeni M. George, Ph.D., Maria Grosch, Ph.D.

Background: In addition to its well-established role in motor functioning, the cerebellum plays an important role in the regulation of cognition, emotion, and social behaviors through connections to the frontal orbital cortex, limbic system, and reticular structures. Damage to these circuits may result in a constellation of symptoms including language and visual-spatial difficulties, executive dysfunction, and behavioral-affective disturbances. Although these have been described in patients with recent cerebellar damage, less is known about the long-term outcome of such damage. **Case History:** We report findings from a 25-year-old left-handed (previously right-handed) Caucasian female with 14 years of education and a prior medical history of cerebellar juvenile pilocytic astrocytoma treated with surgery and radiation (completed 16 years ago). She was referred given concerns for significant impulsive/disinhibited and high-risk behavior (particularly in social contexts), poor adaptive functioning, and difficulty retaining employment. She has prior diagnoses of Attention Deficit/Hyperactivity Disorder (prior to her brain tumor) and depression (diagnosed several years posttreatment). Medications at the time of evaluation included Concerta; Lithium had recently been self-discontinued. Recent brain MRI indicated mild atrophy of the right cerebellum. Neuropsychological testing revealed low average IQ with cognitive weaknesses in fine-motor/visual-motor skills, confrontation naming, and aspects of executive functioning. Significant deficits in adaptive functioning and social-emotional difficulties were most prominent and caused significant psychosocial distress. **Conclusions:** This case study attempts to further elucidate a definable cerebellar cognitive affective syndrome following lesions confined to the cerebellum and the need for potential treatment options to best address the constellation of symptoms.

P76. Cessation of Auditory Verbal Hallucinations After Stroke in a Patient With Schizophrenia

David B. Arciniegas, M.D., Kimberly L. Frey, Ph.D., C. Alan Anderson, M.D.

Background: Auditory verbal hallucinations (AVH) are common among persons with schizophrenia and contribute to behavioral disturbances, interpersonal function, and community participation. Reducing posterior perisylvian cortex activity with repetitive transcranial magnetic stimulation suppresses AVH, suggesting overlap between the neuroanatomy of AVH and language. We present a lesion case of a man with schizophrenia who experienced sustained cessation of AVH following left perisylvian cortex infarction. **Case History:** A 57-year old, right-handed man with chronic paranoid schizophrenia predominated by AVH experienced a left middle cerebral artery stroke, resulting in severe global aphasia and right hemiparesis. Prestroke, he experienced nearly continuous AVH that produced severe behavioral disturbances and functional disability, were only partially responsive to antipsychotic medications, and worsened with even brief periods of treatment nonadherence. Immediately poststroke, antipsychotics were discontinued due to the absence of behavioral evidence of AVH as well as to reduce stroke recurrence risk. Over the next six months, hemiparesis waned, motor Functional Independence Measure scores normalized, but severe aphasia persisted (Porch Index of Communicative Ability: 12th percentile). Concurrently, the patient consistently denied AVH, demonstrated no AVH-related behavioral disturbances, and Brief Psychiatric Rating Scale scores improved (including reductions emotional withdrawal, conceptual disorganization, tension, mannerisms and posturing, motor retardation, and blunted affect scores). **Conclusions:** Persistent poststroke cessation of AVH and severe global aphasia amid other motor, psychiatric, and functional improvements implicates infarction of dominant hemisphere perisylvian cortices as the critical lesion in this case. This, the first reported case of lesion-induced AVH cessation, will inform the study of AVH in schizophrenia.

P77. A Dementia Care Shared Medical Visit Model for Patients and Caregivers Using Telemedicine

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Background: Specialty healthcare resources for dementia patients are scarce in rural regions. Shared medical visits could leverage these resources, and telemedicine delivery could facilitate access to remote areas. **Objective:** We present a model piloted at VA Puget Sound Health Care System adapting the Co-operative Dementia Care Clinic (CDCC) model to telemedicine delivery. **Methods:** The CDCC model,

developed in a university-based Memory Disorders clinic, is a shared medical visit model where patient/caregiver dyads meet as a group with dementia care specialists. In our telemedicine adaptation, a neurologist or geriatric psychiatrist and a licensed social worker in Seattle interface with 4–6 dementia patient/caregiver dyads at a remote site through video teleconferencing. A geriatric registered nurse at the remote site provides local coordination. **Results:** The first pilot telemedicine dementia care group started in May 2013. Anticipated advantages include cohesive teamwork between the physician, social worker, patient and caregiver; improved access to dementia -related services; reduced patient travel time; and peer-to-peer support. During this early stage in our program, we will assess physician and social work interventions provided (e.g. changes in chronic disease care, medication management, referrals for respite or adult day health), patient satisfaction, and caregiver stress. **Conclusions:** A telemedicine CDCC model holds potential as a means to reach patients lacking dementia care in their communities. Unique qualities include collaborative care between the physician, nurse, social worker, patients, caregivers, and peers; leverage of a shared medical visit format to increase access to dementia care specialists; and improved reach to outlying areas through telemedicine technology.

P78. A Case Study: The Use of Chronotherapy to Treat Suicidality and Highly Treatment Resistant Depression

Gregory Sahlem, Nolan Williams, Benjamin Kalivas, Amanda Roper, Emily Williams, Thomas Uhde, Mark George, E.Baron Short

Background: Current antidepressant treatments are limited by delayed onset of action, and a subset of patients that are nonresponsive. Chronotherapy is an intervention that combines wake therapy (total sleep deprivation), sleep phase advance, and bright light therapy. Recent trials have shown efficacy in treating both unipolar and bipolar depression with very rapid onset. There is evidence for efficacy in patients who have failed to respond to other therapies, possibly implying a unique mechanism of action. **Case History:** We present the case of a 53-year-old woman with severe treatment refractory bipolar depression. She was admitted to the inpatient unit due to worsening depression, along with increased suicidality. She had previous trials with limited benefit of multiple treatment modalities, including multiple medications, electroconvulsive therapy, ketamine infusion, and epidural cortical stimulators. A trial of chronotherapy was initiated with rapid and sustained improvement in depressive symptoms, as well as suicidality. Inventory of depressive symptoms (IDS) went from 56 to 31 following the intervention. Suicide severity index (SSI) score went from 35 to 22 following the intervention. Previously she had no IDS score below 50 for the previous year. **Discussion:** This is the first report of treatment with chronotherapy that specifically addresses suicidality. It also demonstrates efficacy in a patient who has failed to respond to multiple other interventions. This report subsequently lends support to the safety of chronotherapy in suicidal patients, and demonstrates that the antidepressant effect is likely mediated via a mechanism of action that is different than other available treatments.

P79. A Heuristic for the Clinical Evaluation of Traumatic Brain Injury and Aggression

Hal S. Wortzel, M.D., David B. Arciniegas, M.D.

Background: Aggression is a common neuropsychiatric sequela of traumatic brain injury (TBI) that may be directed outwardly (i.e. assaultive behavior) or inwardly (i.e. suicidal behavior). Subspecialists in Behavioral Neurology & Neuropsychiatry are frequently asked to evaluate persons with TBI who perform aggressive acts and to comment on the relative contributions of neurotrauma versus other neuropsychiatric factors to any specific act of violence. This task is made challenging by the lack of a coherent conceptual framework for the analysis of violence in relation to TBI. **Objective:** To review the relationship between TBI and aggression and to identify the critical factors informing clinical formulations about that relationship. **Methods:** A PubMed search for "TBI" AND ["aggression" OR "suicide"] was performed. Studies describing epidemiological, neuroanatomical, and/or clinical associations between TBI and outwardly or inwardly direct aggression were reviewed. **Results:** The literature reveals a relationship between TBI and aggression that is moderated not only by injury factors but also preinjury and postinjury factors. It also suggests that consideration of the nature of and context for that act – especially injury severity, purposefulness of the act, and instrumentality of the act – are required for coherent clinical formulations about the relationship between TBI and any specific act of violence. **Conclusions:** A three-dimensional heuristic facilitates evaluations of the relationship between TBI and any given aggressive behavior. Future investigations, critiques, and analyses of this subject are needed to evaluate the application of this heuristic to the clinical evaluation and study of aggression among persons with TBI.

P80. Neuromyotonia and Limbic Encephalitis With LGI1 Antibodies

Jennifer Erickson, Davin Quinn

Background: Voltage-gated potassium channel (VGKC) complex antibodies have been recognized as causing both peripheral and central nervous system symptoms. Two recognized VGKC cell surface proteins, LGI1 and Caspr2, have been identified as targets of pathologic autoimmune antibody

production. While LGI1 antibodies are associated with a syndrome of limbic encephalitis, hyponatremia, and myoclonic jerks, Caspr2 antibodies are usually associated with neuromyotonia (abnormal muscular contractions) and Morvan's syndrome (hallucinations, muscle spasms, and insomnia). The authors present a case of a patient with LGI1 and VGKC antibodies who manifested both neuromyotonia and limbic encephalitis. **Case history:** A 64 year-old male with a prior history of depression presented with three months of disinhibited behavior, stupor, loss of language, abnormal muscle tremors and seizure-like events. On workup he was discovered to have T2-FLAIR signal in the temporal lobes on magnetic resonance imaging (MRI) and serology that was positive for LGI1 and VGKC antibodies. During treatment with plasmapheresis and intravenous gammaglobulin, he manifested periods of abnormal muscle movements and sweating while asleep that were consistent with neuromyotonia. Treatment with carbamazepine effectively abolished these symptoms. He had partial response to immunotherapy, with continued significant anterograde amnesia. **Conclusions:** Although neuromyotonia has been primarily associated with Caspr2 antibodies, the above case was noteworthy for the presence of neuromyotonia with LGI1 antibodies. Heterogeneity may exist in the presentations of Caspr2 and lGI1 antibody-induced disorders. Clinicians should be aware of neuromyotonia as an expression of autoimmune encephalopathy and that it may co-occur with limbic encephalitis.

P81. Catatonia as a Neuropsychiatric Manifestation in Paraneoplasic Encephalitis: Case Report

RodrÍguez-Chávez, E, León-Vázquez, M, Orozco-Suarez, S.

Background: Paraneoplasic encephalitis is an uncommon clinical condition generated by autoantigens against neuronal surface receptors (NMDA), leading to a dysfunction of the neurotransmission, some neuropsychiatric symptoms such as mood disturbance, psychosis, cognitive impairment, sleep changes, and irritability are common. Catatonia is a neuropsychiatric condition associated with mental illnesses, is not a common presentation in paraneoplasic encephalitis. **Case history:** We report the case of 22 year old woman who developed mood disturbance characterized by depression one month previously to catatonic symptoms, our suspected diagnosis was a viral encephalitis, but in the diagnostic workup, the viral, bacterian and mycobacterian cultures and molecular studies were negative. patient's caregivers noted abdominal pain, and a mass was clinically detected on the inferior abdominal region, resulting in a Ovarian tumor, the histopathologic study reported mature teratoma. She never developed neurological focalization, she developed ridigity, mutism, psychomotriz agitation, wax flexibility and negativism; MRI study reported hyperintensity on the bilateral temporal lobe, the EEG study did not report any abnormality. The patient was treated with Human IgG, BZD, salpingoophorectomy but she developed ventilatory complications, sepsis and died. **Conclusions:** Paraneoplasic encephalitis has clinical features similar to a neuroinfectious condition, sometimes the clinical features are neuropsychiatric manifestations, the neuroinmmunological basis are molecular mimicry between antigens expressed on the tumoral surface against specific epitopes on the healthy neurons in the CNS, like extracellular ionic channels (NMDA) leading to neurotransmitter disfunction and manifestations such as Catatonia (also related with dopamine and GABA disfunction)

P82. Teaching Materials to Translate Neuroanatomical Knowledge From Textbook to the War-Related Blast Injury Patient- Part III

Robin A. Hurley, M.D., and Katherine H. Taber, Ph.D.

Background: Traumatic Brain Injury (TBI) has been the "signature injury" of the current wars. Countless media reports keep the challenges of TBI, chronic pain, and post traumatic stress disorder (PTSD) in the forefront of discussion. Although educational research strongly supports the use of guided experiences in which an expert explicitly draws attention to key connections to promote the creation of useable knowledge, neuroanatomy is seldom incorporated in comprehensive psychiatric assessment/treatment planning or in prognostic discussions. Few appropriate teaching tools are presently available. **Methods:** New clinical and research findings relevant to functional neuroanatomy when these conditions co-occur were reviewed, synthesized, and summarized into graphic rich original teaching materials (diagrams, charts, 3D models) in which color carries a significant portion of the new information. This approach allows large volumes of new information to be presented without overwhelming the learner. **Results:** Evaluations from parts I and II of this series (2009, 2012), were very positive and indicated the need for more integrated materials of this type. Incorporating new findings from 2012 and 2013, Part III will further facilitate establishment of connections between functional neuroanatomy and clinical practice, deepen interest in the individual aspects of each patient, and enhance appreciation of co-occurring pathologies and prognosis. **Conclusions:** These newly revised tools support guiding learners' through the intricacies of this complicated field. Use of guided experiences strongly promotes the development of the active, integrated knowledge of functional anatomy required for the practice of neuropsychiatry as it relates to the assessment and treatment of blast-injured Veterans.