2013-03-11

Abstracts from the 2013 Sebastian K. Littmann Research Day

Scott B. Patten

The University of Calgary, Department of Psychiatry Presents
The Sebastian Littmann Research Day
Amphitheatre Alberta Children's Hospital
Friday, March 01, 2013 at 09:00 Hours

Title: Pharmacological Management of Pediatric Obsessive-Compulsive Disorder: A Systematic Review and Meta-analysis

Author(s): Beata Komierowski, Waqar Waheed, Scott Patten

Background: Despite the recent proliferation of clinical trials in adults with obsessive-compulsive disorder (OCD), there remains a paucity of information for the pharmacological treatment of the pediatric patient. Our aim was to systematically review and statistically analyze evidence for the efficacy of pharmacological interventions in inducing clinical remission in pediatric patients with OCD. This review advances previous research by expanding the literature base to include recent controlled and uncontrolled studies, and by statistically controlling for study design in further evaluation of pharmacological outcomes. **Method:** Published clinical trials were collected using computerized searches in Medline, PsychINFO, Embase and the Cochrane Central Register of Controlled Trials. This identified 15 randomized controlled trials (RCTs) and 11 non-RCTs for a total of 26 studies (N = 1233). Meta-analysis using a random effects (RE) model was conducted on 24 studies that met inclusion criteria. Analysis of variance (ANOVA) was subsequently used to investigate the relative efficacy of citalopram, sertraline, fluvoxamine, fluoxetine paroxetine and clomipramine in reducing OCD symptoms, while controlling for study design. **Results:** RE modeling yielded a statistically significant, large pooled effect size (ES) for the pharmacological treatment of pediatric OCD (ES = 1.37, 95% CI = 1.01 – 1.72). ANOVA revealed that the effect on ES of using a control group was significant. Thus, controlling for study design, there was no difference in efficacy between any of the pharmacological agents compared. **Conclusions:** Our results have important clinical applications. Given that no pharmacological agent was found to be more efficacious than any other, this meta-analysis reiterates that the clinical utility of these interventions be weighed against their adverse effect profiles. However, these results may be partially limited by the paucity and poor quality of existing studies. Head-to-head RCTs comparing pharmacological agents are needed to strengthen or refute these results and ensure greater generalizability of findings. Furthermore, future work in this field - preferably by systematic review - should examine the adverse effects of these drugs across the full range of disorders in which they have been evaluated in the pediatric population.

Please provide three learning objectives for your presentation

At the end of this presentation, participants will be able to:

(1) Gain familiarity with evidence for the efficacy of pharmacological interventions in clinical remission induction for pediatric patients with obsessive-compulsive disorder (OCD).

(2) Review the statistical analysis of this evidence using random effects modeling techniques.

(3) Examine the relative efficacy of existing pharmacological treatments in pediatric OCD, controlling for study design.

The University of Calgary, Department of Psychiatry Presents
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Title: Determinants of Depression in Multiple Sclerosis

Author(s): Sandy Berzins, Andrew Bulloch, Jodie Burton, Keith Dobson, Gordon Fick, Scott Patten

Mental illness is an important dimension of multiple sclerosis (MS). People with MS have an elevated prevalence of anxiety, psychotic and mood disorders. The objective of this study was to estimate the incidence of depression in people with MS and examine potential determinants of its incidence and prognosis. **Methods:** Participants in this prospective cohort study(n=190) were followed for six months, starting with two baseline risk factor assessments then completing a depression screening instrument, the PHQ-9, every 2 weeks. At monthly intervals, information was collected on potential risk factors, using standard items from existing validated scales and instruments. Participants had the option of completing their surveys either online (n=99), by mail (n=43), or by telephone interviews (n=48). **Results:** Baseline cross-sectional analyses found a depression prevalence estimate of 22% using the PHQ-9 cut-point method (n=182). Risk factors for depression included smoking (OR= 3.3, 95% CI 1.5-7.2), previous episode of depression (OR=6.9 (95% CI 2.6-18), major life events stress (OR 6.8, 95% CI 2.7-17.1), pain level during previous 2 weeks (OR 5.4, 95% CI 2.4-12.4). Adverse childhood experiences were also associated with depression; for example, childhood emotional abuse (OR= 4.9, 95% CI 2.3-10.6) and physical neglect/sexual abuse (OR=2.7, 95% CI 1.3-5.7). No significant associations were found for other chronic conditions, including history of migraine (OR= .77, 95% CI .28-2.1), asthma (OR=1.44, 95% CI 0.5- 4.6), hypertension (OR=.8, 95% CI 0.3-2), and diabetes (OR=1.9, 95% CI 0-14.6). **Conclusion:** Depression in MS is often regarded as being neurologically induced due to brain lesions. However, these results provide a clear indication that depression in MS exhibits a risk factor profile characterized prominently by psychological and social factors. Future research should adopt a greater focus on such determinants, which may provide unrecognized opportunities for prevention and/or treatment of depression in this population.

Please provide three learning objectives for your presentation:

(1) Participants will be able to describe potential determinants of depression in people with multiple sclerosis.

(2) Participants will learn the prevalence estimates for depression in people with MS in southern Alberta.

(3) Participants will be able to describe a prospective cohort study design.

The University of Calgary, Department of Psychiatry Presents
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Friday, March 01, 2013 at 09:00 Hours

Title: The recurrence of major depression is strongly dependent on the number of previous episodes

Author(s): Bulloch A, Willliams J, Lavorato D and Patten S

Background. A history of major depression is known to be a risk factor recurrence of future episodes. Also those with recurrent episodes are likely to experience poorer response to treatment than those with first episodes. It is therefore important to fully understand the epidemiology of major depression to guide clinical practice. Most studies in this area depression take into account the prior occurrence of a single episode. In this study we ask whether the number of previous episodes is related to the probability of recurrence. **Methods.** We used data from the Canadian National Population Health Survey (the NPHS). This survey has been repeated every 2 years since 1994/1995, beginning with a cohort of over 17,000 individuals from the general population. Prior year depression was assessed with the CIDI Short Form. We estimated the total number of episodes of depression in individuals over the first 7 cycles (ie until 2006/2007) and examined recurrence in these individuals in the 8th cycle of 2008/2009. These analyses employed logistic regression where recurrence in cycle 8 was the outcome and predictor variables include the number of episodes in the first 7 cycles. **Results.** The odds ratio for recurrence of depression in cycle 8 was found to be strongly dependent on the number of episodes in the first 7 cycles. The odds ratios for recurrence showed a near linear dependence on episode number, reaching a value of greater than 20 when the number of prior episodes was maximal at 7. **Conclusions.** Our results show a striking increase of probable depression recurrence depending on the number of preceding episodes. Clinical strategies to manage recurrent depression may need to take into account the detailed history of episode number to be most effective.

Please provide three learning objectives for your presentation:

(1) Use of epidemiology to guide clinical practice.

(2) Use of data from health surveys to understand the epidemiology of major depression

(3) Consideration of the full history of patients with major depression to predict recurrence

The University of Calgary, Department of Psychiatry Presents
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Title: The effect of receiving workplace mental health accommodations on the outcome of mental disorders

Author(s): Bolo, C., Sareen, J., Patten, S., Schmitz, N., Currie, S., Wang, J

Background: In many countries, providing workplace mental health accommodations has become a legal obligation for employers. Theoretically, mental health accommodations may promote a healthier work environment for individuals with mental disorders. There is a paucity of research on how workplace mental health accommodations affect the prognosis of mental disorders. **Methods:** A general population sample of employees in the Canadian province of Alberta, aged 25-65 years with a lifetime or current mental disorder, were interviewed by telephone (n=784). Mood and anxiety disorders were determined using the full version of the WHO Composite International Diagnostic Interview. Participants were questioned regarding needs and receipt of workplace accommodations in the last 12 months. The presence of mental disorders was assessed one year later. **Results**: In participants who reported that they did not need accommodations, 20.9% had a depressive/anxiety disorder one year later. In participants who needed but did not receive accommodations, 30.8% had a depressive/anxiety disorder. Receiving the needed accommodations reduced this percentage to 24.5%. Results of multivariate logistic regression modeling showed that having accommodation needs met was associated with a lowered risk for having a mental disorder one year later. Having a mental disorder at follow-up was associated with a mental disorder in the previous 12 months but not with sex, age, or full-time/part-time job status. **Conclusions:** Receiving needed accommodations was associated with better outcomes for mental disorders. The accommodations are simple and inexpensive to employ and would be a beneficial way for employers to improve the workplace for employees with mental disorders.

Please provide three learning objectives for your presentation:

(1) Receiving needed workplace mental health accommodations reduced the occurrence of a depressive or anxiety episode at the one-year follow-up.

(2) Having one's workplace accommodation needs met reduced the odds of experiencing a depressive or anxiety episode one year later.

(3) Workplace mental health accommodations can improve the outcomes of mood and anxiety disorders.

The University of Calgary, Department of Psychiatry Presents
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Title: Predicting Hospital Length of Stay for Adult and Geriatric Patients with Schizophrenia

Author(s): Zahinoor Ismail, Tamara Arenovich, Charlotte Grieve, Peggie Willett, Gautam Sajeev, Donald Addington, Benoit H. Mulsant

Objective: To determine predictors of hospital length of stay (LOS) for adult and geriatric patients with schizophrenia admitted to inpatient psychiatric beds. **Method:** Admission and discharge data from a large urban mental health centre, from 2005 to 2010 inclusive, were retrospectively analyzed. Utilizing the Resident Assessment Instrument- Mental Health, an assessment that is used to collect demographic and clinical information within 72 hours of hospital admission, 187 geriatric schizophrenia admissions were compared to 881 adult schizophrenia admissions. Predictors of length of hospital stay (LOS) were determined using a series of general linear models. **Results:** Increased dependence for Instrumental Activities of Daily Living (IADLs) predict longer LOS in geriatric but not in general adult schizophrenia patients. Predictors of longer LOS irrespective of admission group (adult versus geriatric) include Activities of Daily Living (ADLs) and incapacity to make treatment decisions. Conversely, higher pain scores on admission predicted a shorter LOS in both adult and geriatric study groups. **Conclusions:** Addressing these predictive factors early on in the admission and in the community may result in shorter LOS and more optimal use of resources.

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Title: University of Calgary Postgraduate Psychiatry Training Programme Half-Day Academic Curriculum Review: An example to the practical use of the Kern six-step approach for curriculum development and program administration
Author(s): Thomas Stark

The University of Calgary postgraduate residency training programme offers a five year Royal College accredited programme preparing physicians for the RCPSC examinations and certification in Psychiatry. Additional to the clinical components of the curriculum, the University of Calgary training programme holds a half-day per week throughout the residency for purposes of formal and self-directed learning. Following the format as outlined by the RCPSC phases of training, the curriculum segregates residents into junior (PGY1/2/3) and senior (PGY4/5) levels. Seniors make use of the time for self-directed learning, while juniors are expected to attend seminars designed to provide the core content in educating the generalist psychiatrist. The purpose of this presentation is to provide a critique of the curriculum currently offered to the junior resident using the Kern six step approach to curriculum development, a model that employs an iterative process to formulate and renew curriculum on an ongoing basis. An additional objective to this presentation includes a demonstration of how this model can be applied to areas outside of education, including the administration of programs operating within the mental health system.

Please provide three learning objectives for your presentation:

(1) After the lecture, the participant should be able to understand how to apply the Kern six step approach for curriculum review

(2) After the lecture, the participant should be able to list the areas of strength and areas for improvement of the University of Calgary Postgraduate Psychiatry Training Program half day curriculum

(3) After the lecture, the participant should be able to modify Kern's six step approach for non-educational program evaluation, such as administration of health delivery programs administered through the Alberta Health Services system

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Title: Manic Episode as the Index Presentation of Alzheimer's Dementia with Galantamine-precipitated Relapse of Mania

Author(s): Hamza Jalal, Aravind Ganesh, Raymond Lau, John Lysack, and Zahinoor Ismail

Introduction: Neuropsychiatric symptoms are commonly seen in the middle to late stages of Alzheimer's dementia (AD), although they can also present at the mild cognitive impairment phase. Cholinesterase inhibitors (CHEIs) are effective in treating cognitive symptoms of dementia, but their role in the setting of bipolar disorder or manic symptoms in dementia is poorly understood. **Case Description:** A 74-year-old woman with cardiovascular disease and risk factors but no prior psychiatric history presented with an index episode of mania in 2007. She was diagnosed with bipolar I disorder and responded well to divalproex 125 mg BID and risperidone 0.25 mg BID. Once stabilized 1 month later, she scored 16/30 on the Montreal Cognitive Assessment (MoCA), revealing deficits particularly in visuospatial/executive function, attention, delayed recall, abstraction, and fluency. This declined to 19/30 by 2010 and 9/30 by 2012. A formal functional assessment indicated an institutionalized level of care. She was started on galantamine 8 mg daily for dementia. Three weeks later, she presented for a second manic episode, with additional features of hypersexuality, increased counting and dancing behaviour. A comprehensive workup for medical causes of mania and delirium was unremarkable. Magnetic resonance imaging in 2007 and 2012 showed progressive hippocampal and parietal atrophy consistent with AD, in addition to frontal and temporal pole atrophy and white matter disease. Positron Emission Tomography showed bilateral parietal, temporal, and patchy frontal hypometabolism. Galantamine was discontinued and her mania settled on divalproex 250 mg TID and risperidone 0.25 mg QHS by 3 weeks. Her MoCA score was 7/30 at discharge. **Discussion:** Here we present another case of CHEI-associated mania in a patient with probable AD and a bipolar diathesis. We found seven cases reporting onset of mania after initiation of CHEIs to treat cognitively impaired individuals, both with and without pre-existing bipolar disorder. There is some evidence from case series that symptoms in patients with overlapping features of bipolar disorder and AD may be refractory to or aggravated by CHEIs. Seen in the context of other reports of CHEI-associated mania, our case suggests that the use of CHEIs may need to be more cautious in cognitively impaired elderly patients with concomitant psychopathology.

Please provide three learning objectives for your presenation:

(1) Appreciate the importance of neuropsychiatric symptoms in dementia including mania

(2) Recognize that cholinesterase inhibitors have been reported to precipitate mania in some cases

(3) Appreciate the evolving understanding of the various effects of cholinesterase inhibitors on the central nervous system and their unclear role in the setting of bipolar-type symptoms in dementia

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Title: Hippocampus volume in major depressive disorder (MDD) and the effects age of illness onset

Author(s): **Allegra Courtright,** Natalia Jaworska, Frank MacMaster, Xiao-Ru Yang, Sarah Pradhan, Devin Mahnke, Bradley Goodyear, Rajamannar Ramasubbu

***Background*:** Accumulating evidence has indicated neural abnormalities in major depressive disorder (MDD). In particular, the hippocampus, which is implicated in special navigation, episodic memory formation and is a core limbic system structure, has been implicated in the pathophysiology of MDD. Individuals with MDD have been found to have decreased hippocampal volumes compared with controls. Limited research, however, exists regarding the role that age of MDD onset (i.e., pediatric or adult) plays in these hippocampus volumetric abnormalities in depression. ***Methods*:** Hippocampus volume, established by manually tracing the hippocampus (coronal and sagittal views used), was assessed in individuals with MDD (N=45) and healthy controls (N=18). Volumetric assessments were also carried out between controls and MDD patients divided into those with MDD onset prior to and after 18 years of age [pediatric (N=16) and adult (N=29) MDD onset groups, respectively]. ***Results*:** No significant hippocampal volume differences were found between the MDD group versus controls; no differences existed when the MDD group was subdivided into the pediatric and adult MDD onset groups either (sex and age served as covariates). A significant negative correlation existed between HAM_D scores and average as well as right hippocampus volumes. This relation appeared to be primarily driven by the pediatric MDD onset group. ***Conclusions*:** Increased depression severity, as assessed by HAM_D scores, appears to be associated with a smaller hippocampal volume that seems to be most pronounced in early-onset depression. This suggests that earlier disease onset may have a more detrimental influence of brain structure, which appears to be associated with depression symptoms. Previous antidepressant exposure may influence the main negative hippocampus volume results when comparing MDD groups to controls. However, this warrants further investigation via longitudinal and larger cohort studies.

Please provide three learning objectives for your presentation:

(1) Understand the role of the hippocampus in the context of depression
(2) Examine the relation between hippocampus volume and severity of depression.
(3) Highlight the importance brain development and depression interactions

The University of Calgary, Department of Psychiatry Presents
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Friday, March 01, 2013 at 09:00 Hours

Title: Age of Onset and Corpus Callosal Morphology in Depression

Author(s): *Anne Kemp, Frank MacMaster, Natalia Jaworska, Xiao-Ru Yang, Sarah Pradhan, Devin Mahnke, Allegra Courtright, Bradley Goodyear, Rajamannar Ramasubbu*

Background*:** The corpus callosum (CC) is the largest white matter center in the brain. Maturation of the CC corresponds to maturation of cognitive processes in the brain, and is the result of CC myelination. Abnormally pruned white matter fibers, including those of the CC, are thought to predispose an individual to major depressive disorder (MDD). We previously showed an abnormally thin genu via magnetic resonance imaging (MRI) in adolescents with MDD, and similar results were found in elderly patients; however, age of depression onset has yet to be examined as a factor in CC size. ***Methods*:** CC area, established by manually tracing the CC (sagittal view used), was assessed in individuals with MDD onset before and after age 18 (N=18 and N=27, respectively), as well as in healthy controls (N=18). *Results:* MDD patients had significantly smaller genu volumes than controls. This difference was driven by the pediatric onset group, as genu area was smaller in pediatric versus the adult onset and control groups. ***Conclusions: Decreased CC area is evident in pediatric-onset MDD. As CC maturation continues in adolescence, MDD onset may interfere with normal CC development. This might be due to pruning of fibers or inadequate myelination. In order to determine which is the cause of smaller CC areas in MDD with a pediatric onset, the CCs of adolescents with MDD should be examined with diffusion tensor imaging (DTI).

Please provide three learning objectives for your presentation:

(1) Understand the role of the corpus callosum in the context of depression.
(2) Understand how age of depression onset may influence corpus callosum structure.
(3) Highlight the importance of brain development and depression interactions

The University of Calgary, Department of Psychiatry Presents
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Friday, March 01, 2013 at 09:00 Hours

Title: Subgenual anterior cingulate cortex (sgACC) volume in major depressive disorder (MDD): influence of MDD onset age

Author(s): Jaworska, N., Yang, X.R. MacMaster, F., Ramasubbu, R.

***Background*:** The subgenual anterior cingulate cortex (sgACC) is densely interconnected with limbic and subcortical structures and prefrontal cortical regions, and has been implicated in visceral responses to emotive processing, in emotive memory formation and in regulating reward contingencies. Extant evidence suggests sgACC abnormalities, typically volumetric decreases, in major depressive disorder (MDD). However, limited research exists regarding the role that age of MDD onset (i.e., pediatric or adult) plays in these sgACC volumetric abnormalities evident in depression. ***Methods*:** sgACC volume, established by manually tracing the sgACC (coronal and sagittal views used), was assessed in individuals with MDD (N=34) and healthy controls (N=15). Volumetric assessments were also carried out between controls and MDD patients divided into those with MDD onset prior to and after 18 years of age [pediatric (N=12) and adult (N=22) MDD onset groups, respectively]. ***Results*:** MDD participants had smaller sgACC volumes (collapsed across hemispheres) than controls (gender and age were controlled for). The adult MDD onset group drove this difference as the sgACC volumes was smaller in the adult versus both the pediatric MDD onset and control groups. This effect persisted even after controlling for illness duration (as well as gender and age). There was no difference in sgACC volume between the pediatric MDD onset and control groups. ***Conclusions*:** Decreases in sgACC volume appear to manifest largely in the adult onset MDD sub-group. Control-like sgACC volumes in the pediatric MDD onset group may be due to differential neurocompensatory responses to the early-onset of disease and/or early intervention. These explanations warrant further investigation via longitudinal studies.

Please provide three learning objectives for your presentation:

(1) Understand the role of the subgenual anterior cingulate cortex (sgACC) in the context of depression.
(2) Understand how age of depression onset may influence sgACC volume.
(3) Highlight the importance of brain development and depression interactions.

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Friday, March 01, 2013 at 09:00 Hours

Title: Cerebellar vermis volume in bipolar disorder: hypotheses & preliminary results
Author(s): Devin J Mahnke, Anthony Nazarov, Frank MacMaster, Glenda MacQueen

***Background*:** Bipolar disorder (BD) is a serious psychiatric illness characterized by recurrent episodes of mania and depression; this disorder is associated with numerous neurophysiological abnormalities. Lithium, a commonly prescribed treatment for BD, is also associated with neurophysiological changes, however to date this relationship has been little studied. This study has two aims: first to determine if cerebellar vermis volumetric abnormalities exist in subjects with BD versus healthy controls; and second to determine if lithium directly exerts volumetric effects on the cerebellar vermis. We hypothesize that cerebellar vermis volumes will be larger in lithium-treated bipolar subjects than in both controls and non-lithium-treated bipolar subjects. ***Methods*:** Volumes of the three vermal lobes, anterior (V1), superior-posterior (V2), and inferior-posterior (V3) will be established by manual tracing in sagittal and coronal orientations. Total vermal volumes, and volumes of each lobe, will be compared between BD subjects (N=68) and healthy controls (N=45), covarying for both sex and lithium treatment/non-treatment. A longitudinal subset of this data from pre- and post-lithium treatment will be similarly analyzed to further elucidate lithium's effect on the vermis. ***Results*:** Preliminary data from BD patients (N=6) and age- and sex-matched healthy controls (N=6) suggest the vermis may be larger in BD patients ($p=0.249$), consistent with previous reports. These data display a large effect size (Cohen's $d=0.71$), suggesting that the difference will achieve significance in a larger sample; further analysis will also reveal whether the difference is driven by lithium treatment.

Please provide three learning objectives for your presentation:
(1) Understand the potential correlation between the cerebellar vermis and bipolar disorder
(2) Discuss the importance of further understanding the mechanisms of lithium's therapeutic effect
(3) Explore the relationship between brain structure and bipolar disorder

Revised: 2013-03-08

The University of Calgary, Department of Psychiatry Presents
The Sebastian Littmann Research Day
Amphitheatre Alberta Children's Hospital
Friday, March 01, 2013 at 09:00 Hours

Title: Seeing in Depth: a Behavioral Examination of Depth Perception in individuals at Clinical High Risk for Psychosis.

Author(s): Barbato, M., Addington, J.

Background: In the last decade the interest in the role of the visual system in schizophrenia has grown, with evidence pointing to dysfunction in bottom-up visual processing that leads to early visual processing deficits. A fundamental component of visual perception is binocular depth perception (BDP), i.e. depth perception derived by the difference between the images impressed upon the left and right retina which fully develops in the early stages of growth. Schechter et al. (2006) reported impaired BDP in schizophrenia and attribute it to developmental deficits of brain structures involved in early visual processing. The aim of this study is to examine BDP in a young population at clinical high risk (CHR) of developing schizophrenia to assess if this dysfunction is present in this potentially pre-psychotic period and may contribute to predicting risk of developing schizophrenia. **Methods:** Forty CHR participants and 40 healthy controls were assessed using a computerized test of depth perception. The test is comprised of two trial blocks, with four conditions with increasing levels of difficulty. Participants were asked to discriminate the relative depth of two stimuli simultaneously presented on the screen. R**esults & Conclusions:** Contrary to our hypothesis, BDP was not impaired in the CHR group, whose performance was similar to that of the control group. These results seem to indicate that BDP should not be considered as a candidate for early detection of visual processing deficits in those who are at risk for psychosis. However, alternative explanations of the present results are offered and future development of this study is discussed.

Please provide three learning objectives for your presentation:

(1) Learning about the clinical high risk population
(2) Learning about perceptual mechanisms involved in depth perception
(3) To become aware of the importance of predicting psychosis in those who are "at risk".

The University of Calgary, Department of Psychiatry Presents
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Friday, March 01, 2013 at 09:00 Hours

Title: The Role of Endothelial Dysfunction in Schizophrenia
Author(s): Martin Vetter, Billie-Jean Martin; Todd Anderson; Thomas J Raedler

Schizophrenia is a severe mental illness affecting approximately 1% of the population. There is also a significantly higher burden of cardiovascular disease in schizophrenia, and coronary and cerebrovascular incidents are the leading causes of death in this population.
Endothelial dysfunction is an emerging marker for cardiovascular disease and has been shown to have predictive value for future cardiovascular events. It can be assessed non-invasively by terms of:
- Velocity-Time-Integral; - Flow-mediated dilation; - Pulse Arterial Tonometry
We have conducted a study to evaluate these novel makers in people with schizophrenia. We recruited 51 persons with a diagnosis of schizophrenia of at least 5 years between the ages of 18 und 45 years. We compare this group to age-, gender- and smoking status-matched control volunteers.
In our preliminary analysis, we compared this group to 26 healthy volunteers matched for age, gender and smoking. At this point subjects with schizophrenia had significantly lower Velocity-Time-Integral. Our preliminary results suggest a higher cardiovascular risk in subjects with schizophrenia, which may be mediated by endothelial dysfunction.
We will also discuss how we can improve medical care in people with mental illness in general.
This study was supported by an unrestricted grant from Pfizer Canada

Please provide three learning objectives for your presentation:
(1) Recognize physical health issues in people with schizophrenia,
(2) Understand the role of endothelial dysfunction in cardiovascular risk assessment,
(3) Appreciate the interface of mental and physical health.

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Title: Perceived Discrimination in those at Clinical High Risk for Psychosis
Author(s): Saleem, M.M., Stowkowy, J., Cadenhead, K.S., Cannon, T.D., Cornblatt, B.A., McGlashan, T.H., Perkins, D.O., Seidman, L.J., Tsuang, M.T., Walker, E.F., Woods, S.W., Addington, J.

Aim: There is evidence to suggest that perceived discrimination may be associated with psychosis. Less is known about its potential impact on those at clinical high risk (CHR) for psychosis. The aim of this study was to determine the extent of perceived discrimination in a CHR sample and its possible relationship to attenuated positive symptoms and self-beliefs. **Methods:** Participants were 360 CHR individuals and 180 healthy controls. Assessments included measures of perceived discrimination, symptoms and schemas. **Results:** CHR participants reported significantly more perceived discrimination. Perceived discrimination was significantly associated with negative schemas but not with symptoms. **Conclusions:** These results provide preliminary evidence for the prevalence of high degrees of perceived discrimination in a CHR for psychosis population.

Title: Controlling statistical errors when there are multiple tests
Author(s): Scott B. Patten

When statistical tests are used in data analysis, there are two main types of statistical error: Type I and Type II error. Type I error is the risk of rejecting a null hypothesis incorrectly. Type II error occurs when there is an erroneous failure to reject a null hypothesis. The risk of Type I error is high when many tests are performed ("multiplicity"). The most commonly employed procedure to deal with this problem is the Bonferroni correction, which controls the family-wise error rate, usually at 5%. Unfortunately, this procedure is excessively conservative, diminishing the chance of obtaining statistically significant results, even when real effects exist (Type II error). A compromise between unrestrained multiple testing (and the associated risk of Type I error) and Bonferroni adjustment (and its associated risk of Type II error) is available in procedures that control the false discovery rate, such as the Benjamini-Hochberg procedure. These approaches control the risk of Type I error while improving statistical power.

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Friday, March 01, 2013 at 09:00 Hours

Title: Efficacy of aripiprazole in the treatment of agitation and aggression in children and adolescents: a literature review

Author(s): Caitlin Earle, Jason Taggart

Background: Agitation and aggression are the most frequently cited reasons for referral to pediatric psychiatry. Recent practice patterns are showing an increase in the use of aripiprazole for the treatment of aggression in children and adolescents. The focus of this review is to examine the literature regarding the use of aripiprazole for the treatment of aggression and agitation in children and adolescents with various psychiatric diagnoses. **Methods:** Medline OVID was used, searching for the terms: aripiprazole + aggression + autism, aripiprazole + aggression + conduct disorder, and aripiprazole + aggression + tourette's. This search produced fifteen articles for review. **Results:** Overall, the majority of the studies found aripiprazole to be effective in the treatment of agitation in the pediatric population. A consistent side effect was found to be sedation. Nine out of eleven articles demonstrated positive results whereas two studies reported a possible increase in aggression, self-injurious behaviour, and emotional lability. Lower efficacy and adverse effects were thought be correlated with young age, low weight and concomitant medications of sedatives and alpha-2 agonists. **Conclusions:** Aripiprazole appears to be effective and well tolerated in the treatment of aggression in most pediatric psychiatric populations studied. However, given the early stages of this evolving evidence base, future studies examining efficacy and adverse effects are required – particularly in possible vulnerable populations such as lower weight children and in those taking concomitant psychiatric medications.

Please provide three learning objectives for your presentation:

(1) Determine the efficacy of aripiprazole in treating agitation specific to autism, pervasive developmental disorder, conduct disorder and tourette's syndrome in the pediatric population
(2) Brief commentary of the most pertinent side effects of the medication
(3) Suggestions for further research in regards to this question

The University of Calgary, Department of Psychiatry Presents
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Friday, March 01, 2013 at 09:00 Hours

Title: Prevalence and incidence of a major depressive episode in Canadian community-dwelling seniors: Results from the National Population Health Survey.

Author(s): Trevor M Cook, JianLi Wang

Background: Major depression represents a great cause of disease burden worldwide. Further, the proportion of Canadian citizens aged 65 years of age and older is rapidly growing. Despite this, there is a lack of longitudinal data on risk factors for a major depressive episode in seniors. The bulk of prevalence estimates of depression in Canadian seniors have been generated using the Canadian Community Health Survey (CCHS) and Canadian Study on Health and Aging (CSHA), while no estimates of depression incidence exist on Canadian seniors. In the case of the CCHS and CSHA, estimates are difficult to interpret due to a small sample size (CCHS) and a sample primarily designed to examine dementia rather than the general population (CSHA). **Methods:** This study utilized 8-years of data from the National Population Health Survey, collected by Statistics Canada. Participants for this analysis were restricted to individuals 65 years of age and older in 1998. Prevalence of depression in 1998 was calculated. Sample was further restricted to those free of a current or previous depressive episode to calculate 2-year and 8-year incidence of a major depressive episode (MDE). MDE was defined based on CIDI-SFMD score and anti-depressant use defined through ATC codes. **Results**: Utilizing only the CIDI-SFMD, prevalence, 2-year and 8-year estimates of MDE were 2.23%, 1.46%, and 4.45% respectively. Utilizing ATC codes alone these estimates were 4.89%, 3.50% and 8.75% respectively. When CIDI-SFMD and ATC codes were combined to indicate a MDE, prevalence of a major depressive episode was estimated to be 6.50% (5.38%-7.63%). 2-year incidence was estimated to be 4.54% (3.38%-5.60%), while 8-year incidence was estimated to be 13.09% (11.27%-14.90%). **Conclusion:** Our prevalence estimates of MDE utilizing both the CIDI-SFMD and ATC codes are considerably higher than those previously reported in Canadian literature. These are the first estimates of depression incidence on Canadian seniors. The use of ATC codes contributed too much higher estimates of depression prevalence and incidence than utilizing the CIDI-SFMD alone.

Please provide three learning objectives for your presentation:

(1) Prevalence of a major depressive episode in Canadian seniors
(2) Incidence of a major depressive episode in Canadian seniors
(3) Changes in estimates of MDE prevalence and incidence through outcome coding

The University of Calgary, Department of Psychiatry Presents
The Sebastian Littmann Research Day
Amphitheatre Alberta Children's Hospital
Friday, March 01, 2013 at 09:00 Hours

Title: Treatment of Repetitive Behaviors in Autistic Disorder with Selective Serotonin Reuptake Inhibitors: A Systematic Review and Meta-analysis
Author(s): Angela Paulson, Waqar Waheed, Scott Patten

Repetitive behaviors are a core feature of Autistic Disorder. There is significant overlap between compulsions seen in Obsessive-Compulsive Disorder (OCD) and the repetitive behaviors found in Autistic Disorder. It has been postulated that both of these symptoms may respond to the same pharmacological intervention, namely Selective Serotonin Reuptake Inhibitors (SSRI's).
A literature review searching pertinent databases will be performed to determine the efficacy of SSRI's compared to placebo or other medications for the treatment of repetitive behaviors in Autistic Disorder. The primary outcome measure is improvement in repetitive behaviors as determined by an improvement in rating scales such as the Yale-Brown Obsessive Compulsive Scale or the Aberrant Behavior Checklist.
Data will be presented on trials identified, excluded (as well as reasons for exclusion) and included and they will be summarized by the outcome of mean improvement in rating scales measuring repetitive behaviors. Trials will also undergo an assessment of quality as measured by the Jadad Score. Random effects models will be used to account for heterogeneity of studies anticipated. Presence of heterogeneity will be reported using the I^2 statistic.

Please provide three learning objectives for your presentation:
(1) To review studies examining repetitive behaviors in Autistic Disorder
(2) Review the conflicting evidence for the pharmacological treatment of repetitive behaviors in Autistic Disorder
(3) Determine the efficacy of SSRI's in the treatment of repetitive behaviors in Autistic Disorder

The University of Calgary, Department of Psychiatry Presents
The Sebastian Littmann Research Day
Amphitheatre Alberta Children's Hospital
Friday, March 01, 2013 at 09:00 Hours

Title: A clinical approach to the diagnosis and treatment of depression in patients with substance use disorders.

Author(s): Amanda Berg, David Crockford

Over a third of patients with substance use disorders (SUDs) will suffer from major depressive disorder (MDD) in their lifetime. Identifying a concurrent MDD has important treatment implications. Using a case example, distinguishing features of comorbid MDD with SUD is reviewed and contrasted with clinical features suggestive of a substance induced mood disorder with depressive features. Clinical findings that aid in this diagnostic delineation include the temporal course of illness, the presence specific MDD symptoms as well as aspects of family history. When an underlying MDD is identified in a patient with SUD, an integrated treatment approached should be employed. Patients with comorbid MDD and SUD are as responsive to antidepressant treatment as patients with MDD without comorbid SUD and thus can potentially benefit from early treatment with antidepressant therapy. Unfortunately, even when effective antidepressant therapy improves depression outcomes, SUD outcomes remain unchanged. This underscores the importance of an integrated approach such as an integrated cognitive behavioral therapy/relapse prevention intervention in addition to pharmacotherapy.

Please provide three learning objectives for your presentation:

(1) Identify distinguishing features of underlying major depressive disorder from substance induced mood disorder with depressive features.
(2) Develop a treatment plan for major depressive disorder in a patient with a comorbid substance use disorder.
(3) Understand the importance of an integrated treatment approach to comorbid MDD and SUD.

Title: Neurochemical alterations associated with repetitive transcranial magnetic stimulation intervention in adolescent major depressive disorder

Author(s): Xiao-Ru Yang, Adam Kirton, Chris Wilkes, Glenda MacQueen, Irene Liu, Natalia Jaworska, Omar Damji, Jamie Roe, Thilinie Rajapakse, R. Marc Lebel, Marilyn Fife, Frank P. MacMaster

Background: Repetitive transcranial magnetic stimulation (rTMS) is emerging as a possible treatment option for adolescents with treatment-resistant major depressive disorder (MDD). This study aimed to investigate the mechanisms of action of rTMS in treating MDD. The dorsolateral prefrontal cortex (DLPFC) and hippocampus were specifically investigated, as they are implicated in the pathophysiology of MDD. We hypothesized that an increase in DLPFC glutamate levels would occur after three weeks of rTMS treatment, in accordance with extant adult studies. Furthermore, we expected that changes in glutamate concentration would correlate with changes in MDD symptoms relative to baseline. **Methods:** Proton magnetic resonance spectroscopy (^{1}H-MRS) was used to detect changes in glutamate levels that occur following rTMS treatment of adolescents with treatment-resistant MDD (N=5). Voxels were placed in two brain regions implicated in MDD: the left DLPFC and the hippocampus bilaterally. **Results:** Following rTMS, treatment responders (defined as a 50% reduction in depressive symptoms; N=3) showed an increase in left DLPFC glutamate levels (11%), which corresponded to an improvement in depressive symptom severity (67% reduction). Treatment non-responders (N=2) had elevated baseline glutamate levels compared to responders in that same region, which decreased slightly with rTMS (-9%). **Conclusions:** In responders, rTMS may act by elevating (normalizing) glutamate levels in the left DLPFC, thereby leading to symptom improvement. Having elevated baseline glutamate levels may be predictive of poorer outcomes with rTMS treatment.

Please provide three learning objectives for your presentation:

(1) Understand the neurochemical alterations associated with MDD.
(2) Understand the possible mechanism of action of rTMS in improving MDD symptom severity.
(3) Highlight the potential for rTMS to be used as a treatment option for adolescents with MDD.

Title: The Neurological Disease and Depression Study (NEEDS): Challenges in Epilepsy

Author(s): Fiest KM, Jette N, Dykeman J, Wiebe S, Lowerison M, Bulloch AGM, Atta C, Blaikie L, Carroll C & Patten SB

Background: The Neurological Disease and Depression Study is a multi-disciplinary team grant addressing the burden, course and impact of depressive disorders in neurological conditions, including epilepsy. The processes and outcomes of recruiting epilepsy patients in a large urban city are discussed here. **Methods:** Consecutive English speaking patients seen in a tertiary care outpatient epilepsy clinic in a large city were screened (exclusion: moderate or severe developmental delay, dementia, aphasia or hearing impairment). Eligible participants were first presented with a preliminary consent form by clinic staff not involved in the NEEDS project; if agreeable, they were approached by study staff. A questionnaire addressing demographics, depression, quality-of-life, epilepsy severity and adverse event profile was completed by participants in the waiting room before their appointment. Participants were booked for a psychiatric Structured Clinical Interview for DSM-IV (SCID) within two weeks of their appointment. All recruitment processes (including SCID scheduling) and data were managed through secure custom online programs. **Results**: 300 persons with epilepsy were eligible and were presented with the full consent. Of those, 268 (89.3%) agreed to participate in the study. 197 of the 268 (73.5%) people who agreed to participate completed the SCID. **Conclusions**: Recruitment to such a study is challenging since data collection needs to occur in a busy clinical setting with intense time pressures as well as concerns about privacy and confidentiality. A good response rate for the SCID interviews was achieved indicating its acceptability in this population. The use of online database managers for scheduling and data management has facilitated study processes considerably.

Please provide three learning objectives for your presentation:

(1) Understand the process of recruitment for the NEEDs study, including the online database management and psychiatric interviews

(2) Understand the results of the initial recruitment process, including response rates at all stages

(3) Understand the challenges of recruiting a large group of patients with a chronic health condition from a tertiary care setting

The University of Calgary, Department of Psychiatry Presents
The Sebastian Littmann Research Day
Amphitheatre Alberta Children's Hospital
Friday, March 01, 2013 at 09:00 Hours

Title: Psychosurgery Revisited – An Early Medley of Neurology, Neurosurgery, & Psychiatry

Author(s): Ganesh, A., Stahnisch, F.W.

Background: The Portuguese neurologist Egas Moniz (1874-1955) is credited with performing the first psychosurgical operation in 1935. He was followed a year later by American neurologist Walter Freeman (1895-1972) and neurosurgeon James Watts (1904-1994). The story of 20th century psychosurgery is fraught with grave ethical violations and complicated personalities; however, this era, particularly preceding the dissemination of "ice-pick" lobotomy, witnessed an intriguing admixing of the professions of neurology, neurosurgery, and psychiatry. An examination of publications from this period could reveal key contributions to these disciplines that arose from this collaboration. **Methods:** The electronic databases of Medline, the Welcome Library, the National Library of Medicine, and the Surgeon-General's Office were searched using the terms "psychosurgery", "lobotomy", and "leucotomy". Of the 283 results, 49 were found to meet the primary inclusion criterion of reporting short-term or long-term data from a psychosurgical procedure. **Results:** Several relevant insights into functional neuroanatomy arose from the outcomes of early psychosurgical procedures, including an improved characterization of the complex roles of structures such as the frontal lobes, thalamus, and amygdala. In addition, the cognitive and personality changes undergone by patients post-psychosurgery facilitated the advancement of objective neuro-psychiatric testing, complementing the cognitive neurology literature arising from similar post-operative testing for other neurosurgical procedures. These observations also strengthened the notion that frontal lobes were the centres of personal awareness and identity. **Discussion:** The attempts by early psychosurgeons to methodically excise portions of the brain and examine their impact on behavior, emotion, and cognition helped establish the organic basis of psychiatric disease, complementing extant psycho-social formulations in psychiatry. Whereas the eventual trajectory of 20th century psychosurgery focusing on mass-dissemination resulted in its demonized legacy, the early inter-disciplinary collaboration that emerged during this era resulted in notable neuroscientific insights. These continue to be reflected in the more modern procedures of stereotactic lesioning, excision, and deep-brain stimulation procedures for epilepsy, movement disorders, as well as intractable depression, addiction, and obsessive-compulsive disorder.

Please provide three learning objectives for your presentation:

(1) Appreciating the unique inter-disciplinary collaboration that emerged in the early period of 20th century psychosurgery

(2) Identifying important insights into functional neuroanatomy and cognitive/behavioural neurology that emerged from the post-operative outcomes of psychosurgical procedures

(3) Recognizing modern targeted lesioning/excisions and deep brain stimulation procedures as being refined successors of early psychosurgical procedures

Revised: 2013-03-08