Results: We did not find any difference in general cognitive performance (BACS total score) regarding the three polymorphisms tested. However, when we analysed specific cognitive domains we have found a significant difference (p=0.002) regarding working memory (assessed by the Digit Span test) in patients with the rs12720071 polymorphism, where those with allele C performed better than those with T/T genotype. Since about a third of the patients (34%) had a history of past use of cannabis and 2.5% reported current use, we performed the rs12720071 polymorphism analysis excluding these patients. In this subgroup of patients, those with allele C also performed significantly better on Digit Span test (p=0.037).

Discussion: In this sample, the rs12720071 polymorphism of CB1R appears to influence performance on a working memory task that is sensitive to prefrontal cortex function.

14. VIOLENCE IN SCHIZOPHRENIA: PREVALENCE, MEASUREMENT, PREDICTION AND PREVENTION

Mark Weiser
Sheba Medical Center

Overall Abstract: Most patients with schizophrenia and bipolar disorders (severe mental illness, SMI) are not violent in their lifetimes, however, a minority of patients are violent at some points in the course of their illness. As the illness appears relatively early in life, and typically runs a chronic course, the number of violent incidents caused by patients can be considerable in some cases. Due to the stigma toward SMI, the media often emphasize reporting of these incidents, which fuel the stigma even more. Although violent behavior is a common cause of concern for patients, their families and clinicians, it is not often discussed in scientific meetings. The purpose of this symposium is to bring this relatively neglected, but very important topic into the spotlight in SIRS, in order to summarize the latest evidence for clinicians and researchers, and to foster new work on reducing these risks of violence.

Dr. Weiser will present an overview of the prevalence of violent behavior in patients with SMI, and will present a population-based, case-control study from Israel, showing increased rates of violent crime in patients with SMI, particularly in female patients and patients who abuse drugs. Secondary analyses will show increased rates of violent behaviour in siblings of patients as well.

Dr. Fazel will present a systematic review on the prognostic (or predictive) accuracy of structured ways to assess violence risk in patients with severe mental illness, and present new work on a scalable and potentially useful predictive model of violent behaviour based on 75,000 patients in Sweden. Dr. Nijman will present a model based on patient, ward and staff variables focused on the causes and triggers of aggressive behaviour on (locked) psychiatric wards. Based on this model, a number of preventive measures can be formulated. At the patient level, the administration of anti-psychotic medication is used to reduce the negative cognitive schemes and delusional thoughts that are depicted in the center of the model. A more novel intervention at the patient level may be the additional administration of nutritional supplements with (among others) high levels of omega 3 fatty acids. The results of two Dutch studies on this topic will be briefly presented in the lecture, among which a RCT on the effects of the use of nutritional supplements on aggressiveness. On the staff level, the use of short-term (daily) risks assessments by the ward nursing staff, among others by means of the six item BrØset Violence Checklist (BVC), has been found to reduce aggressiveness as well as the use of coercive measures on psychiatric wards in two cluster randomized RCTs. On the ward level, studies indicate that aggression on psychiatric wards can be reduced by preventing overcrowding on psychiatric wards, and by providing more space and privacy to the patients.

Dr. Torrey will present data on rates of re-arrest in patients with SMI, showing that the average five-year re-arrest rate is approximately 40% for those released from psychiatric hospitals and 60% for those released from jails or prisons, and will present comparison data from other countries.

He will then present data on the effect of extended conditional release, Forensic Assertive Community Treatment (FACT) teams, and Psychiatric Security Review Boards on re-arrest rates.

14.1 VIOLENT CRIME IN SCHIZOPHRENIA AND BIPOLAR DISORDER: A POPULATION-BASED STUDY

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Background: Previous studies have found that patients with schizophrenia and bipolar disorder are more likely to be violent than the general population. The aim of this study was to investigate the association between schizophrenia and bipolar disorder and violent crime in the Israeli population.

Methods: Using the Israeli Psychiatric Hospitalization Case Registry we identified 3187 patients with a discharge diagnosis of schizophrenia and 506 patients with a discharge diagnosis of bipolar disorder. For each proband we identified parents and siblings, and gender-age-matched controls for patients, parents and siblings. Information on violent crimes was obtained from police records.

Results: Patients with schizophrenia were at increased risk for violent crimes compared with controls [odds ratio (OR) 4.3, 95% confidence interval (CI) 3.8–4.9], especially women (OR 9.9, 95% CI 6.2–15.7). Risk for violent crimes was higher among patients with co-morbid substance misuse than in patients without such co-morbidity (OR 5.1, 95% CI 4.2–6.3). Patients with diagnosis of bipolar disorder were 2.5 times more likely to be convicted or released for mental reasons of violent crimes compared with controls and unaffected full siblings (OR=2.5, 95%/CI 1.7–3.7, OR=2.5, 95%/CI 1.6–4.0 respectively). Although men were more violent than women, diagnosis of bipolar disorder was a more significant risk factor for female patients than for male patients (OR=16.1 95%CI 1.8–144.6 vs. OR=2.4, 95%CI 1.5–3.7).

Discussion: The results of this study suggest that increased risk of violence is part of the clinical picture of schizophrenia and bipolar disorder and needs to be recognized as a legitimate, essential, aspect of clinical management.

14.2 STUCTURED RISK ASSESSMENT IN PSYCHIATRY

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Background: Current approaches to stratify psychiatric patients into groups based on violence risk are limited by inconsistency, variable accuracy, and unscalability.

Methods: Based on a national cohort of 75 158 Swedish individuals aged 15–65 with a diagnosis of severe mental illness (schizophrenic-spectrum and bipolar disorders) with 574 018 patient episodes, we developed predictive models for violent offending through linkage of population-based registers. First, a derivation model was developed to determine strength of pre-specified criminal history, socio-demographic, and clinical risk factors, and tested it in external validation. We measured discrimination and calibration for prediction of violent offending at 1 year using specified risk cut-offs.

Results: A 16 item model was developed from criminal history, socio-demographic and clinical risk factors, which are mostly routinely collected. In external validation, the model showed good measures of discrimination and calibration.
discrimination (c-index 0.89) and calibration. For risk of violent offending at 1 year, using a 5% cut off, sensitivity was 64% and specificity was 94%. Positive and negative predictive values were 11% and 99%, respectively. The model was used to generate a simple web-based risk calculator (OxMIV).

Discussion: We have developed a prediction score in a national cohort of patients with psychosis that can be used as an adjunct to decision making in clinical practice by identifying those who are at low risk of violent offending.

14.3 CAUSES AND PREVENTION OF AGGRESSION FROM PSYCHOTIC INPATIENTS

Henk Nijman* 1
Radboud University Nijmegen

Background: Patients with schizophrenia and other psychotic disorders have an increased likelihood of engaging in violent behavior. These increased risks of dangerous and aggressive behavior, in combination with a lack of insight in their own illness, relatively often make involuntary admission of acutely disturbed psychotic patients on locked psychiatric admissions wards often inevitable. On these locked psychiatric admissions wards, aggression from psychotic patients against staff and fellow patients is a prevalent phenomenon, with the mean in the Netherlands being about 18 aggressive incidents per bed per year on locked psychiatric admissions wards.

Methods: In the lecture, a model of what causes or triggers aggressive behavior on (locked) psychiatric wards is presented. In this model, patient, ward and staff variables are integrated to explain why, and in what specific situations, psychotic patients particularly run a high risk of engaging in aggressive behavior.

Results: Based on the presented model, a number of preventive measures can be formulated.

On the patient level, the administration of anti-psychotic medication is used to reduce the negative cognitive schemes and delusional thoughts that are depicted in the center of the model. A more novel intervention at the patient level may be the additional administration of nutritional supplements with (among others) high levels of omega 3 fatty acids. The results of two Dutch studies on this topic will be briefly presented in the lecture, among which a RCT on the effects of the use of nutritional supplements on aggressiveness.

On the ward level, the use of short-term (daily) risks assessments by the ward nursing staff, among others by means of the six item BrØset Violence Checklist (BVC), has been found to reduce aggressiveness and the use of coercive measures on psychiatric wards in two cluster randomized RCTs.

On the ward level, studies indicate that aggression on psychiatric wards can be reduced by preventing overcrowding on psychiatric wards, and by providing more space and privacy to the patients.

Discussion: The proposed model elucidates how certain patient, staff and ward characteristics may interact in causing aggression. The model also emphasizes that repeated inpatient aggression may be the result of a vicious circle, i.e. inpatient violence is often followed by an increase in environmental and/or communication stress on the patient, thereby heightening the risk of a repeated outburst of violence.

14.4 FOLLOW-UP TREATMENT FOR INDIVIDUALS WITH SERIOUS MENTAL ILLNESS WHO HAVE COMMITTED MAJOR CRIMES

E. Fuller Torrey* 1
The Stanley Medical Research Institute

Background: For individuals who have a psychiatric disorder and have committed a major crime, the rate of re-offending is twice as high in the US compared to nine other countries for which there is comparable data. For such individuals the average five-year rearrest rate is approximately 40% for those released from psychiatric hospitals and 60% for those released from jails or prisons. The use of treatment modalities such as extended conditional release, Forensic Assertive Community Treatment (FACT) teams, and Psychiatric Security Review Boards can reduce the rearrest rate from 40–60% to 10% or less.

Methods: All 50 states were surveyed to assess how they were doing in providing follow-up treatment for such individuals.

Results: Sixteen states were found to be making a moderate effort to provide follow-up treatment, and another 13 states are making a minimal effort. However, the other 21 states, 42% of the total, are making virtually no effort, lending to an unnecessarily high rate of re-offending.

Discussion: Using proven treatment approaches the re-arrest rate of individuals with serious mental illness can be reduced from 40-60% to 10% or less.

Plenary

15. ON THE ROAD TO CURING SCHIZOPHRENA

Cynthia Shannon Weickert
Neuroscience Research Australia: Schizophrenia Research Laboratory

Overall Abstract: I began my journey to find out what caused schizophrenia around the time me and my twin brother, Scott David, turned 17. My first step was to conceptualize schizophrenia as a biological, cellular and molecular brain problem. This guided my choice of undergraduate and graduate study. I quickly realized that schizophrenia was not a “genetic” disease, nor was it an “environmental” disease, it was both. I prioritized studying RNA as was the active genome, the subcellular substrate where genes and environment interact. Guided from my own experience of watching my normal twin be tortured by schizophrenia in his teens, I sought to find answers by studying the mammalian brain as it developed and changed during adolescence. For my post-doctoral fellowship, I joined the laboratory of Joel Kleinman, who has the largest and best characterized human brain collection of people with schizophrenia in the world. Along my journey, while at NIMH in the USA, I discovered changes in neuronal growth factors and hormone receptors during stages of postnatal life and in the brains of people with schizophrenia compared to controls using the classical hypothesis-driven approach. Since I moved to Sydney Australia, I choose a different, more open-minded approach and let the brains of those who suffered “tell me what happened to them”, using a modern, sensitive discovery-driven RNAseq approach. When I listened, more carefully at the molecular level, what I found told me that I may be headed down the wrong path with my research and that I needed to change direction. I suggested that the emphasis I placed on development molecules maybe in some ways blinding me from more clearly seeing the neuropathology that existed only in only some people at the time of death. I found elevated inflammatory cytokine mRNAs in ~40% of the brains of those diagnosed with chronic schizophrenia. In this talk, I will review my latest discoveries on neuroinflammation in schizophrenia including evidence of gliosis, blood-brain barrier (BBB) changes and increased white blood cells in the brains of some with schizophrenia. Today, many of my fellow seekers including geneticists (Chr 6, MHC locus) and epidemiologists (maternal infection) and “animal modelers” (poly I:C) are suggesting that the cause of schizophrenia may involve changes to the immune system. These new discoveries suggest that very first steps I took may have been wrong, that perhaps I should have become an immunologist rather than a neurobiologist. However, from my current vantage point, I believe that even if a fault in the immune system...