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BRIEF REPORT: Occurrence of Metabolic Syndrome in Inpatients with Intellectual Disability Treated with Atypical Antipsychotics

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Abstract

Metabolic syndrome occurs at higher rates among adults with serious mental illness. Atypical antipsychotics have been shown to increase the susceptibility to cardio-metabolic problems, but despite their high usage among individuals with intellectual disability, metabolic syndrome has not been well studied in this group. This study examined the prevalence of metabolic syndrome and its risk factors among 23 psychiatric inpatients with intellectual disability prescribed atypical antipsychotics. Three out of four patients were classified as either obese or pre-obese and over one third were flagged for metabolic syndrome. The need for enhanced metabolic monitoring in adults with intellectual disability is discussed.

Adults with serious mental illness are at significant risk for metabolic syndrome and cardio-metabolic problems (Osborn, Nazareth, & King, 2006). Metabolic syndrome is a condition where co-occurring metabolic disturbances interact to increase the risk for cardiovascular diseases and type 2 diabetes (Hasnain et al., 2009). One of the reasons for the higher rates of metabolic syndrome among individuals with serious mental illness is the prescription of atypical antipsychotics, which have been shown to have metabolic side effects (Melkersson & Dahl, 2004). Several studies have associated atypical antipsychotics with dyslipidemia, insulin resistance, and hyperglycemia (Newcomer, 2005). Weight gain has also been shown to be significantly higher in those taking atypical antipsychotics (Allison et al., 1999; Wetterlig & Müssigbrodt, 1999). For these reasons, metabolic monitoring of patients taking atypical antipsychotics has become a focus of primary care guidelines around the world (Cohn & Sernyak, 2008).

Adults with intellectual disability (ID) constitute a group for whom atypical antipsychotic use is high (Matson & Neal, 2009), but the rates of metabolic syndrome in this population have not yet been studied. However, there is new evidence that rates of diabetes are higher in adults with ID and serious mental illness when compared to other adults with ID, and other adults with mental illness (Lunsky, Lin, Balogh, & Klein-Geltink, 2011). One possible explanation for this finding is that the higher rates are due to risks associated with having an ID combined with risks associated with atypical antipsychotics prescribed for serious mental illness. However, the study by Lunsky and colleagues (2011) was limited in that it could not link diabetes occurrence with medication profiles. The present study is the first to explore the prevalence of metabolic syndrome and its risk factors among individuals with ID who are prescribed atypical antipsychotics and are admitted to an

inpatient facility. Results of this study provide a starting point for future research on the link between metabolic syndrome and individuals with ID prescribed atypical antipsychotics.

Method

Participants

The current study examined clinical profiles of 49 clients admitted to an inpatient unit for adults with ID and psychiatric disorder between January of 2008 and May of 2011. Of the 49 clients, 38 individuals were prescribed atypical antipsychotics and complete metabolic monitoring information was available for 23 (60.5%) of these individuals. No differences existed between clients with and without completed metabolic monitoring tools in terms of their age at admission, length of stay at hospital, gender, and the number of prescribed atypical antipsychotics. Final analyses were based on the 23 individuals prescribed atypical antipsychotics with complete metabolic information. Demographically, the majority was female (60.9%) and the mean age was 32.1 years old (*SD* = 11.3). Only one (4.3%) patient was younger than 20 years old, while 18 (78.3%) were between the ages of 20 and 40, and four (17.4%) were between 41 and 60 years.

Instruments and Procedure

Demographic information on each client, collected at the time of admission to the inpatient unit, was reviewed in detail. Metabolic information including lab results and personal history were systematically gathered and summarized by a clinical tool called the Metabolic Health Monitor (MHM) (Sproule & Cohn, 2008). The metabolic report includes information on antipsychotic medication, diabetes, Body Mass Index (BMI), familial history of diabetes, history of coronary heart disease, history of smoking, as well as the five major indicators for metabolic syndrome: hypertriglyceridemia, abdominal obesity, low HDL, high blood pressure, and high fasting glucose. Patients at risk for three or more of the five major indicators were assigned the status of "suffering from metabolic syndrome" by the MHM. Table 1 displays the cut-off values for the above parameters as per the MHM guidelines. The current study received ethics approval from the hospital Research Ethics Board.

Results

Of the 23 patients prescribed atypical antipsychotics and assessed by the MHM, 17 (73.9%) were prescribed only one atypical antipsychotic, and six (26.1%) were prescribed two or more. Information on familial history of diabetes was missing for the majority of inpatients. Only two individuals had any history of smoking, and none had history of coronary heart disease noted in their chart.

Looking at the five major indicators for metabolic syndrome, abdominal obesity and low HDL, each with a prevalence rate greater than

Table 1. Prevalence Rates of the Five Major Metabolic Syndrome Indicators and BMI Distribution

	Frequency (%)
Metabolic Syndrome Indicators	
High Fasting Glucose (Glucose ≥ 5.6mM)	13.0
Low HDL (HDL < 1.29mM for females, and < 1.04mM for males)	56.5
Hypertriglyceridemia (Triglycerides > 1.69mM)	34.8
High Blood Pressure (BP ≥ S130/85 or on antihypertensive medication)	27.3
Abdominal Obesity (Waist circumference ≥ S88 cm for females, ≥ 102 cm for males)	54.5
BMI Category	
Normal < 25	23.8
Pre-obese 25 – < 30	19.1
Obese ≥ 30	57.1

50%, were the two most prominent factors. High blood pressure and hypertriglyceridemia each occurred in more than 20%, while high fasting glucose had the lowest rate (see Table 1). Among the 21 patients with available BMI information, 12 (57.1%) were obese and four (19.1%) were pre-obese. Of the three patients who were diabetic at the time of the assessment, only one fulfilled the criteria for metabolic syndrome set by the MHM.

In total, eight (34.8%) inpatients, four men and four women, had metabolic syndrome. Of those, six were prescribed one atypical antipsychotic and the rest were prescribed two. Abdominal obesity, hypertriglyceridemia, and low HDL were each present in six individuals, while five had high blood pressure and only one had high fasting glucose. Six inpatients were between the ages of 20 and 39 and the remaining two were in their 40s.

Discussion

This study examined the occurrence of metabolic syndrome among inpatients with ID prescribed atypical antipsychotics. Over one third (34.8%) of our sample presented with metabolic syndrome, closely resembling the 37.3% prevalence rate of this condition reported for inpatients with various psychiatric diagnoses treated with atypical antipsychotics (Correll, Frederickson, Kane, & Manu, 2006). In addition, the incidence of individual metabolic risk factors for those monitored was high. This is the first study to systematically examine the occurrence of metabolic syndrome in a psychiatric inpatient population with ID.

One particularly interesting finding from this study is the unusually high obesity rate. Obesity is more common in adults with ID than in the general population (Yamaki, 2005). The obesity rate of 57.1% found in the present study is much higher than the rate of 34.6% reported in a recent U.S. study of adults with ID in the community (Yamaki, 2005), suggesting that obesity is an even more serious concern for psychiatric inpatients with ID than non-hospitalized individuals with ID.

The side effects of atypical antipsychotics, such as weight gain, can cause many problems for individuals with ID, and even lead to a vicious cycle in which the patient loses interest in activities; becomes dependent on others; and accumulates other risks. Metabolic monitoring of individuals with serious mental illness (Jennex & Gardner, 2008) and the quality of diabetes care for adults with ID (Shireman, Reichard, Nazir, Backes, & Greiner, 2010) have both been found to be inadequate. Findings from the present study suggest that metabolic monitoring can also be particularly problematic for those with ID and mental illness. Even with a hospital-based tool in place such as the MHM, a considerable number of inpatients on atypical antipsychotics lacked metabolic monitoring documentation. It is possible that the patients were monitored clinically, but information was not always recorded, highlighting the importance of creating processes whereby clinical tools are required to inform decision-making. Clinicians need guidance on how to obtain complete information with a population that may not be able to self-report accurately. For example, family history of diabetes was absent on the majority of metabolic tools, but such information is very important in this high-risk population. Hospital staff should make a concerted effort to obtain such information from caregivers.

The major limitation to this study was the small sample size, made even smaller by the poor monitoring of inpatients. It is possible that true rates of metabolic syndrome in this population are either higher or lower than reported here. Moreover, it is unknown whether atypical antipsychotic use is responsible for such high rates of metabolic disturbances or if the clients were at risk before taking such medications. Longitudinal research is required to better understand what takes place for these vulnerable patients.

Further research should look at larger samples with complete metabolic profiles to not only replicate these results, but also investigate the need and effectiveness of using alternatives to atypical antipsychotics for treating psychiatric patients with intellectual disability at risk for metabolic syndrome.

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Key Messages from This Article

People with disabilities: If you are taking atypical antipsychotics, you and your doctor should be checking your health regularly to make sure that you don't develop metabolic syndrome. This is an illness that can lead to problems like diabetes and heart disease.

Professionals: Managing metabolic syndrome in addition to the pre-existing ID can be hard and complicated. Patients with ID prescribed atypical antipsychotics should be regularly monitored for metabolic abnormalities to prevent the onset of metabolic syndrome.

Policy makers: Policy is required to ensure sufficient metabolic monitoring of individuals with ID who are prescribed atypical antipsychotics.

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