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Schizophrenia Research 82 (2006) 107–114

SCHIZOPHRENIA
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Electronically monitored adherence in outpatients with schizophrenia or schizoaffective disorder: A comparison of first- vs. second-generation antipsychotics

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Received 8 August 2005; received in revised form 18 October 2005; accepted 31 October 2005

Available online 22 December 2005

Abstract

Objective: To examine the effect of first- vs. second-generation antipsychotics on electronically monitored adherence in outpatients with schizophrenia or schizoaffective disorder.

Method: The sample consisted of 61 outpatients with a DSM-IV diagnosis of schizophrenia or schizoaffective disorder who took either a first-generation ($N=25$) or second-generation ($N=36$) oral antipsychotic during study participation. Treatment group designation (first-vs. second-generation antipsychotic) was based on the particular antipsychotic medication the patient was receiving as part of routine care at study entry (i.e., non-random assignment). Adherence to prescribed antipsychotic medication was assessed monthly over a 6-month study period using electronic monitoring (EM) of medication bottle opening. Various participant characteristics were collected at baseline to test for group differences and for potential associations with prospectively measured adherence. The primary data analysis was a mixed-model analysis of repeated measures.

Results: The analysis of EM adherence revealed no significant difference between those taking first-generation (6-month adjusted mean adherence=64.35%) and second-generation antipsychotics (6-month adjusted mean adherence=69.17%; Group effect, $p=.29$) and no significant Group X Period interaction ($p=.13$).

Conclusion: There was no statistical difference in EM adherence, over a 6-month period, between patients taking first- and second-generation antipsychotics. However, since the patients were not randomized, conclusions must be interpreted within the context of the quasi-experimental design used in the current study.

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Keywords: Antipsychotic medication adherence; Medication adherence; Schizophrenia

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1. Introduction

Non-adherence to antipsychotic medication is a recurrent problem in persons with schizophrenia and schizoaffective disorder (Young et al., 1986; Fenton et al., 1997). Previous research suggests that non-adherence is associated with serious consequences, including exacerbation of psychotic symptoms (Ayuso-Gutierrez and del Rio Vega, 1997), increased aggression toward self and others (Steadman et al., 1998), worse prognosis (Wyatt, 1991; Lieberman et al., 1998), increased hospital and emergency room use (Fenton et al., 1997; Olfson et al., 2000), and high health care costs (Weiden and Olfson, 1995).

To address this treatment challenge, studies of medication type and antipsychotic medication adherence in schizophrenia have proliferated in recent years (Dolder et al., 2002). One of the important lines of investigation, based on the supposition that the improved tolerability of second-generation antipsychotics might lead to improved adherence with these agents, has led to 6 published studies comparing adherence associated with first- vs. second-generation agents (Olfson et al., 2000; Dolder et al., 2002; Rosenheck et al., 2000; Cabeza et al., 2000; Grunebaum et al., 2001; Diaz et al., 2004). Of the 3 retrospective studies (Dolder et al., 2002; Cabeza et al., 2000; Grunebaum et al., 2001), 1 study found greater adherence among patients taking second-generation antipsychotics (Dolder et al., 2002), whereas 1 study found greater adherence among patients taking first-generation antipsychotics (Grunebaum et al., 2001), and 1 of the studies found no adherence differences (Cabeza et al., 2000). Three recent trials have prospectively evaluated the adherence associated with first- vs. second-generation antipsychotics, with all 3 studies finding a lack of difference in adherence between first- and second-generation agents (Olfson et al., 2000; Rosenheck et al., 2000; Diaz et al., 2004). Differences in previous adherence findings are perhaps due in part to methodological variability in the studies, particularly differences in study samples and methods for measuring and analyzing adherence.

The purpose of the current study was to build on prior research of antipsychotic medication adherence in schizophrenia. Specifically, the current study used EM to examine the effect of first- vs. second-

generation antipsychotics on prospectively assessed adherence in outpatients with schizophrenia or schizoaffective disorder. In contrast to a recent study (Diaz et al., 2004), which compared the EM adherence of first- and second-generation antipsychotics among newly discharged inpatients, the current study involved outpatients irrespective of hospitalization history.

2. Method

2.1. Study design and participants

A quasi-experimental design, and data from 61 participants, was used to prospectively assess adherence to prescribed antipsychotic medication. Data were collected from March of 2003 to April of 2004. During the study period, individual patient participation included a screening, baseline, and then up to 6 consecutive monthly adherence evaluations. Participants were recruited from any one of three Dallas County public mental health outpatient clinics. Eligibility criteria included (a) diagnosis of schizophrenia or schizoaffective disorder as established by the Structured Clinical Interview for DSM-IV, (b) currently taking a single oral antipsychotic, and (c) an age requirement of at least 18 years. Patients were excluded if they received a depot antipsychotic within one treatment cycle or if they used a pillbox. The study protocol was reviewed and approved by the institutional review board of The University of Texas Southwestern Medical Center at Dallas, and written informed consent was obtained from all participants.

2.2. Procedures and measures

2.2.1. Dependent variables

2.2.1.1. Adherence. Adherence to prescribed antipsychotic medication was assessed using electronic monitoring of medication bottle opening. Electronic monitoring was performed with the Medication Event Monitoring System (MEMS[®]), which is a medication vial cap that has the same appearance as regular medication bottle caps and that electronically recorded the date and time of bottle opening. The MEMS[®] caps used in this study had no cueing mechanisms.

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