

# Increased suicide attempt rate among patients interrupting use of atypical antipsychotics

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## SUMMARY

**Purpose** The aim of the study is to investigate whether patients at risk to commit suicide could be identified based on their drug refill patterns.

**Methods** Data for this study were obtained from the PHARMO system comprising drug-dispensing data linked to hospital discharge records. All patients aged 15–45 years, suspected to suffer from schizophrenia and exclusive users of olanzapine or risperidone were selected. The use of antipsychotics was converted into treatment episodes of uninterrupted use. Therapy non-compliance was defined as a drug holiday of at least 30 days. The follow-up started with a treatment episode of at least 90 days. Relative risks for suicide attempts and 95% confidence limits due to drug holidays were estimated using Poisson regression analyses.

**Results** Of 603 patients, 33% interrupted treatment for at least 30 days. An increased suicide attempt rate was observed when comparing uninterrupted and interrupted drug use (20.0/1000 person years vs 72.1/1000 person years, respectively). A four-fold increased risk for attempting suicide among patients with drug holidays was found (RR<sub>adjusted for age and gender</sub> 4.2, 95%CI: 1.7–10.1) compared to patients without drug holidays.

**Conclusions** Patients who do not refill atypical antipsychotics in time can be identified in the pharmacy and are most likely those with an increased risk to commit suicide. Copyright © 2003 John Wiley & Sons, Ltd.

KEY WORDS — suicide attempt; atypical antipsychotic drug; schizophrenia; compliance

## INTRODUCTION

Schizophrenia is a major cause of suicide and hence treatment with antipsychotic drugs is indicated to control the disease and prevent these patients from committing suicide.<sup>1</sup> However, patients suffering from schizophrenia are known as poor compliers with pharmacotherapeutic treatment. The lack of compliance is partly explained by the nature of the disease and

severe adverse drug reactions, particularly extrapyramidal side effects.<sup>2</sup> We investigated whether patients at risk to commit suicide could be identified based on their drug refill patterns.

## DATA SETTING

Data for this study were obtained from the PHARMO medical record linkage system in the Netherlands. The PHARMO medical record linkage system includes drug-dispensing records from community pharmacies and hospital discharge records of all 865 000 community-dwelling inhabitants of 25 medium-sized cities in the Netherlands.<sup>3</sup>

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## SELECTION OF PATIENTS

From the PHARMO system, we selected all patients aged 15–45 years who were suspected to suffer from schizophrenia and were exclusive users of the atypical antipsychotics olanzapine or risperidone. The use of antipsychotic drugs was converted into treatment episodes of uninterrupted use, whereby patients may have one or several treatment episodes during their follow-up. Therapy non-compliance was defined as a drug holiday of at least 30 days. The follow-up of patients started with a treatment episode of at least 90 days, consequently excluding treatment episodes less than 90 days as start of follow-up. All patients had a follow-up period of at least 1 year and ended if the patient died, moved out of the PHARMO area or at the end of the data collection period (31 December 2001), whichever of these events came first.

## DATA ANALYSIS

Suicide attempts were restricted to those attempts leading to hospitalisation (ICD-9-CM code E950–959). The incidence rates were estimates from the number of hospitalisations and follow-up time (person years), contrasting those with and without drug holidays. Relative risks for suicides attempts and 95% confidence limits due to drug holidays were estimated using Poisson regression analyses (SAS version 8.2). Risk estimates were controlled for differences in age and gender.

## RESULTS

From the PHARMO database, 603 patients aged 15–45 years old, who were prescribed exclusively olanzapine or risperidone for at least a period of 90 days, were identified in the period 1996–2000. Of 603 patients, 204 patients (33%) interrupted treatment for a period of at least 30 days. Among patients without drug holidays, six suicide attempts were recorded during 300 person years observation time, yielding a suicide attempt rate of 20.0 per 1000 person years. Among patients who did interrupt treatment at least once, 27 suicide attempts were observed during a total observation period of 375 years, yielding a suicide attempt rate of 72.1 per 1000 person years. Adjusted for age and gender, the relative risk for attempting suicide among patients with drug holidays was increased four-fold (relative risk: 4.2, 95%CI: 1.7–10.1) compared to patients without drug holidays.

## COMMENT

These results show that among patients who interrupt or stop treatment with atypical antipsychotic drugs, the suicide attempt rate was increased four-fold. Our findings corroborate with previous studies reporting an increased seven-fold suicide attempt risk due to non-compliance with antipsychotics among schizophrenic patients.<sup>4</sup> A limitation of this study is the lack of information regarding diagnoses. Although the study population was restricted to patients 15–45 years of age and long-term users of atypical antipsychotics olanzapine and risperidone, we cannot exclude that some study subjects did not suffer from schizophrenia. However, we feel that independent of the diagnosis, the large increased risk enables physicians and pharmacists to identify those patients most likely to commit suicide. Patients who do not refill atypical antipsychotics in time can be identified in the pharmacy and are most likely those with an increased risk to commit suicide. Further research is needed to devise effective interventions.

### KEY POINTS

- Schizophrenia is a major cause of suicide.
- Antipsychotic drugs are indicated to control schizophrenia and to prevent committing suicide.
- Among patients who interrupt treatment with atypical antipsychotics, the suicide attempt rate was four-fold increased.
- Patients who do not refill atypical antipsychotics in time can be identified in the pharmacy and are most likely those with an increased risk to commit suicide.

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