Conventional, Atypical, and Combination Antipsychotic Prescriptions: A 2-Year Comparison

Raymond P. Tempier, M.D., M.Sc., F.R.C.P.C., and Nicole H. Pawliuk, M.A.

Background: The purpose of this study was to determine if there is a relationship between the type of antipsychotic prescribed (conventional, atypical, or a combination) and patients' use of psychiatric services and prescription of adjuvant medications.

Method: A chart review of 83 outpatients with long-term psychiatric disorders recorded the type and dosage of psychiatric medications prescribed in 1997–1998 (T1) and 2 years later, in 1999–2000 (T2). Psychiatric service use was also noted during the 2-year follow-up.

Results: Atypical prescriptions increased from 27% (N = 22) to 45% (N = 37) 2 years later. At T2, 35% of patients (N = 29) were prescribed conventionals, and 19% (N = 16) were prescribed a combination of conventionals and atypicals. The mean antipsychotic dosage in chlorpromazine equivalents (546.5 mg/day) increased significantly ($p < .05$). There was no difference between the 3 groups in their use of psychiatric services or the prescription of adjuvant medications, with the exception of less common prescription of anticholinergics. There was also no difference in psychiatric service use between patients who remained on treatment with combined antipsychotics at T1 and T2 (11%; N = 9) and the rest of the sample. Patients who were switched from one type of antipsychotic to another made more use of psychiatric services, however.

Conclusion: Contrary to our expectations, patients prescribed combined antipsychotic types did not make more use of psychiatric services or use more adjuvant medications. The high percentage of patients prescribed a combination may be due to antipsychotic polypharmacy preferences and may represent a very slow crossover from one antipsychotic to another.

(J Clin Psychiatry 2003;64:673–679)

Received Feb. 1, 2002; accepted Nov. 7, 2002. *From the Department of Psychiatry, McGill University (Dr. Tempier), and the Department of Psychiatry, McGill University Health Centre, Montreal General Hospital (both authors), Montreal, Quebec, Canada.*

Supported by the Department of Psychiatry, McGill University Health Centre, Montreal General Hospital.

The authors thank Brent M. McGrath, B.Sc., for help with the chart review.

Corresponding author and reprints: Raymond P. Tempier, M.D., McGill University Health Centre, Montreal General Hospital, 1650 Cedar Ave., Montreal, Quebec, Canada H3G 1A4 (e-mail: raymond.tempier@muhc.mcgill.ca).

Atypical antipsychotic medications present several advantages over conventionals in the treatment of schizophrenia and long-term psychoses. These advantages include fewer extrapyramidal side effects, possible greater decrease in negative symptoms, and less adverse impact on cognitive functioning.[1–3] Atypical antipsychotics may also improve quality of life and the rehabilitation process.[4] Thirty percent to 60% of patients with schizophrenia are refractory to treatment, and some guidelines recommend the prescription of an atypical antipsychotic in these cases.[1,5] Other authors suggest the use of atypicals for patients with schizophrenia in a stable phase, to optimize treatment and increase patients' integration into the community.[3,6]

Do physicians apply these recommendations in their routine clinical practice? The important medical act of switching to another antipsychotic is left to the judgment of the treating psychiatrist. Several studies have examined switches between antipsychotic medications.[7–9] Furthermore, the amount of literature on the polypharmacy of antipsychotic medications has recently increased. It seems that psychiatry's "dirty little secret"[10] has come into the open. A number of studies recently published together[11–13] tracked the prescription of antipsychotic medications across time and reported an increase in the proportion of both atypical prescriptions and multiple antipsychotics prescribed. To know how many patients are being treated with atypical antipsychotics, and how many are switched over a period of time, is of obvious interest for clinical, administrative, and research purposes.[14,15]

The current study was suggested by earlier work in which prescriptions of antipsychotic medications for outpatients with severe long-term psychiatric disorders were studied from hospital charts.[16] Results showed that in 1997–1998 almost half (46%) of the patients were prescribed conventionals; 29% of these were prescribed depot preparations. A smaller group of patients (29%) were prescribed atypicals, and 25% were prescribed a combination of conventionals and atypicals (33% were prescribed depot medication). The rather large size of the "combination" group was surprising, and 2 interpretations could be given: patients were in the process of switching to atypicals, or they were stuck in a "pharmacologic purgatory."[17]

The purpose of the present study was to investigate these patients' prescriptions 2 years later, to determine if more of them were prescribed atypicals and to observe if a

Table 1. Patients' Antipsychotic Medication Regimens at T1 (1997–1998) and T2 (1999–2000) (N = 83)[a]

	Antipsychotic Type at T2				
	Conventional	Atypical	Combination	None	Total at T1
Antipsychotic type at T1					
Conventional	23 (27.7)[b]	12 (14.5)	5 (6.0)	1 (1.2)	41 (49.4)
Atypical	3 (3.6)	17 (20.5)	2 (2.4)	0 (0.0)	22 (26.5)
Combination	3 (3.6)	8 (9.6)	9 (10.8)	0 (0.0)	20 (24.1)
Total at T2	29 (34.9)	37 (44.6)	16 (19.3)	1 (1.2)	83 (100.0)

[a]All values are shown as N (%).
[b]These subjects were prescribed a conventional antipsychotic at both T1 and T2; percentage of entire sample is shown in parentheses.

combination group still existed. Furthermore, we were interested in determining if there is a relationship between the prescription of a particular type of antipsychotic and both the use of psychiatric services and the prescription of adjuvant medications.

METHOD

Sample

Our sample was formed from the prescriptions of patients randomly drawn from a list of active outpatient files ("active" means that patients were seen by a professional (physician, nurse, social worker, or occupational therapist) at least once in the previous 4 months). The patients were part of two 1997 and 1998 studies; 78 were from a survey of patient satisfaction with psychiatric services,[18] and 21 were control subjects from a study of patients with dual diagnoses.[19] The 2 earlier studies were approved by an Institutional Review Board (Montreal General Hospital Ethics Committee), and the patients had given informed consent that included permission to investigate their hospital files. The 1997–1998 time period of data collection will be referred to as T1, and the period of data collection 2 years after T1 will be referred to as T2.

Of the initial 99 patients, 83 had clinical information in their hospital charts 2 years later, qualifying them for the follow-up investigation. There were no differences between the 83 follow-up patients and the 16 nonretrieved patients in terms of sex, age, diagnosis, or Global Assessment of Functioning (GAF)[20] score at T1. Of these 16 patients, 6 were being followed elsewhere in psychiatry. Three patients were deceased, 2 had moved away, and 1 was permanently institutionalized. There was no information for 4 patients. Within the 3 antipsychotic medication groups at T1 (conventional, atypical, or combination), 56% (N = 9) of the nonretrieved patients had been prescribed conventionals, 31% (N = 5) had been prescribed atypicals, and 13% (N = 2) had been prescribed a combination of conventionals and atypicals. These proportions were not significantly different from those of the 83 patients followed up (Table 1) ($\chi^2 = 1.0$, df = 2, $p > .05$).

Procedure

A review of hospital charts was undertaken. We investigated the prescription written closest in time to 2 years after the initial interview. We recorded the type of medication (antipsychotic, anticholinergic, anxiolytic, etc.) and daily dosages, as well as the amount of time on treatment with the antipsychotic medications. Prescriptions for medications administered on a p.r.n. basis were excluded from analyses. Only subjects who had been taking their antipsychotic medication(s) for 4 weeks or more at the initial interview were included for follow-up. The dosages of antipsychotic medication were translated into chlorpromazine equivalent (CPZe) dosages using a published table.[21] The chart review also recorded the use of psychiatric services during the 2-year follow-up period, including the number of clinic visits to clinical case managers and physicians, psychiatric hospitalizations, bed days for psychiatric hospitalizations, psychiatric emergency visits, and psychiatric emergency visits necessitating a stay of 1 or more nights in a psychiatric emergency department. Sectorized mental health services in our province (Quebec, Canada) ensure that patients seen in out-of-sector emergency rooms are transferred to their sector hospital for hospitalization. Statistical analyses were conducted with SPSS, Version 10.0.[22]

RESULTS

Patients' Profile

Of the 83 patients still followed up at 2 years, 55% (N = 46) were men. At T1, their mean (SD) age was 42.4 (9.8) years, and their mean GAF score was 48.5 (13.1) ("serious symptoms or impairment in social, occupational, or school functioning"[20[p32]]). Seventy percent (N = 58) of these patients had a primary diagnosis of schizophrenia, 19% (N = 16) had schizoaffective disorder, 5% (N = 4) had depressive disorder, and 5% (N = 4) had another type of psychosis, a substance abuse disorder, or a personality disorder.

Antipsychotic Medication Prescription Patterns

The numbers of patients prescribed conventionals, atypicals, or a combination at both T1 and at T2 are pre-

Table 2. Patients' Demographic and Clinical Characteristics by Antipsychotic Medication Type at T2[a]

Characteristic	Conventional (N = 29)	Atypical (N = 37)	Combination (N = 16)	Analysis		
				Result	df	p
Age at T1, mean (SD), y	44.7 (9.9)	40.8 (10.0)	41.6 (8.6)	F = 1.1	3,79	NS
Sex, N (%) male	16 (55.2)	20 (54.1)	10 (62.5)	$\chi^2 = 0.3$	2	NS
Diagnosis at T1, N (%)						
Schizophrenia	21 (72.4)	25 (67.6)	12 (75.0)	$\chi^2 = 13.1$	10	NS
Schizoaffective disorder	3 (10.3)	10 (27.0)	3 (18.8)			
Other psychosis	1 (3.4)	0 (0.0)	0 (0.0)			
Depressive disorder	2 (6.9)	2 (5.4)	0 (0.0)			
Personality disorder	2 (6.9)	0 (0.0)	0 (0.0)			
Substance abuse disorder	0 (0.0)	0 (0.0)	1 (6.3)			
GAF score at T1, mean (SD)	50.1 (12.3)	46.3 (13.3)	49.4 (14.2)	F = 0.7	3,66	NS
No. of clinic visits in 2 years, mean (SD)	35.3 (28.0)	36.4 (27.4)	33.7 (17.9)	F = 0.1	2,79	NS
No. of psychiatric hospitalizations in 2 years, mean (SD)	0.2 (0.5)	0.6 (1.7)	0.1 (0.3)	F = 1.1	2,79	NS
Total no. of bed days in psychiatric hospital in 2 years, mean (SD)	5.4 (16.4)	18.3 (49.0)	3.6 (13.5)	F = 1.6	2,79	NS
No. of psychiatric emergency visits in 2 years, mean (SD)	1.1 (1.8)	2.1 (5.5)	1.1 (1.5)	F = 0.6	2,79	NS
No. of overnight stays in psychiatric emergency in 2 years, mean (SD)	0.3 (0.7)	0.8 (2.6)	0.3 (0.6)	F = 0.9	2,79	NS
CPZe daily dose at T2, mean (SD), mg	502.0 (669.2)	479.3 (284.9)	756.9 (660.2)	F = 1.6	2,78	NS

[a]T1 refers to the time period 1997–1998, and T2 refers to 1999–2000.
Abbreviations: CPZe = chlorpromazine equivalent, GAF = Global Assessment of Functioning.

sented in Table 1. Three main trends can be seen. (1) There was a slight decrease in the proportion of patients who were prescribed a combination of conventionals and atypicals from 24% (N = 20) at T1 to 19% (N = 16) at T2. (2) Nine (56%) of the 16 patients prescribed a combination at T2 were also prescribed a combination at T1. (3) The percentage of patients prescribed only atypicals increased significantly from 27% (N = 22) at T1 to 45% (N = 37) at T2 ($\chi^2 = 28.1$, df = 6, $p < .001$).

Time on medication. The chart review noted the amount of time the patient had been taking his or her prescribed antipsychotic at both T1 and T2. Eighty-five percent (52/61) of all patients prescribed conventional antipsychotics at T1 had been on treatment with that medication for more than 1 year. At T2, 69% (31/45) had been taking the conventional antipsychotic for 3 years or more. Additionally, 38% (16/42) of all of those taking atypical antipsychotics at T1 had been prescribed that medication for more than a year. By T2, 23% (N = 12) of 53 patients had been prescribed the atypical antipsychotic medication for 3 years or more.

Most interesting is the medication time for patients who did not switch medication groups from T1 to T2. Patients remaining on treatment with conventional antipsychotics overwhelmingly had been taking the same medication for more than 3 years (91%; 21/23). Fifty-three percent (9/17) of those remaining on treatment with atypicals took the same medication for more than 3 years (and 82% [14/17], for more than 2 years). The most interesting finding is that of the 9 patients remaining on a combination of conventional and atypical medications, 67% (N = 6) remained on treatment with the same medications for more than 2 years.

Comparison of antipsychotic medication groups. There were no differences between the 3 antipsychotic medication groups at T2 in age, sex, GAF score, or primary diagnosis. There were also no significant differences between the 3 groups in the use of psychiatric services over the 2-year period (Table 2).

Forty-five percent (13/29) of those prescribed conventionals and 25% (4/16) of those treated with a combination of conventionals and atypicals at T2 were prescribed depot preparations. This proportional difference was not significant ($\chi^2 = 1.7$, df = 1, $p > .05$). For psychiatric service use, patients prescribed depot preparations had a significantly higher mean number of clinic visits in the 2-year period (49.1) than those not prescribed depot preparations (31.6; $F = 6.7$, df = 1,81; $p < .05$). There were no differences in the number of psychiatric hospitalizations, number of bed days due to psychiatric illness, or number of psychiatric emergency room or overnight emergency room visits between those prescribed depot medications and those not prescribed depot medications.

Characteristics of the combined antipsychotics group. Comparisons of demographic and clinical variables between the 9 patients who remained on treatment with a combination of atypicals and conventionals at T2 and the rest of the sample (N = 74) revealed no differences in age, sex, GAF score, or primary diagnosis. There were also no differences in the use of any psychiatric services during the 2-year period for these groups. Six of these patients received their prescriptions from the same physician, and the remaining 3 received prescriptions from 3 other physicians.

Characteristics of the "switched" versus "unswitched" antipsychotics groups. During this period,

Table 3. Prescribed Adjuvant Therapies by Antipsychotic Medication Type at T2 (1999–2000)[a]

Adjuvant Medication Type	Conventional (N = 29)	Atypical (N = 37)	Combination (N = 16)	No Antipsychotic (N = 1)	Total N Prescribed Each Adjuvant Medication	Analysis[b] χ^2	p
Anticholinergic	13 (44.8)	3 (8.1)	9 (56.3)	0 (0.0)	25	17.1	< .01
Anxiolytic	12 (41.4)	17 (45.9)	6 (37.5)	1 (100.0)	36	1.7	NS
Antidepressant	4 (13.8)	11 (29.7)	2 (12.5)	0 (0.0)	17	3.6	NS
Mood stabilizer	6 (20.7)	12 (32.4)	5 (31.3)	0 (0.0)	23	1.6	NS

[a]Values are shown as N (%) unless otherwise noted. Percentages do not add up to 100% and Ns do not add up to 83 because patients could be prescribed more than 1 type of adjuvant medication.
[b]df = 3.

41% of patients (N = 34) were switched from one type of antipsychotic to another (including 1 patient with no antipsychotic medication prescribed at T2), while 59% (N = 49) were not switched (e.g., took the same type of antipsychotic, although the particular medication may have changed) (see Table 1). Comparisons of the switched versus unswitched groups revealed no differences in demographic or clinical variables. The 2 groups were different in their use of psychiatric services over the 2 years: patients who had been switched from one antipsychotic type to another had a mean of 0.71 psychiatric hospitalizations in the 2-year period (range, 0–10), compared with 0.12 psychiatric hospitalizations (range, 0–2) for those who were not switched ($F = 4.9$, df = 1,81; $p < .05$). Likewise, those who were switched from one antipsychotic type to another had a mean of 2.7 psychiatric emergency visits (range, 0–25) in 2 years, compared with 0.7 visits (range, 0–6) for those who were not switched ($F = 5.4$, df = 1,81; $p < .05$). A similar effect was also found for number of overnight psychiatric emergency visits, with those who were switched staying a mean of 1 time overnight in the 2-year period (range, 0–13), compared with 0.2 overnight visits (range, 0–3) for those who were not switched ($F = 4.6$, df = 1,81; $p < .05$).

Comparisons of psychiatric service use for patients switched from conventional to atypical antipsychotics with those switched from atypical to conventional antipsychotics were also conducted. There was a trend toward more service use for those switched from atypicals to conventionals, with slightly more clinic visits (49.7 vs. 29.4, $p = .08$) and slightly more psychiatric bed days (33.7 vs. 7.1, $p = .06$) in the 2-year period.

Evolution of atypical antipsychotic prescriptions. In 1997–1998 (T1), 51% (N = 42) of patients were prescribed either atypicals or combined antipsychotics, with 60% (25/42) prescribed risperidone; 29% (12/42), olanzapine; 7% (3/42), clozapine; 2% (1/42), quetiapine; and 2% (1/42) prescribed both risperidone and clozapine. In 1999–2000 (T2), 64% of patients (N = 53) were prescribed either an atypical antipsychotic or combined antipsychotics, with 40% (21/53) prescribed risperidone; 47% (25/53), olanzapine; 4% (2/53), clozapine; 8% (4/53), quetiapine; and 2% (1/53), both risperidone and clozapine. The increase in the proportion of patients prescribed olanzapine at T2 could be due to the fact that 8 (32%) of the 25 patients who were prescribed risperidone at T1 were switched to olanzapine by T2.

Dosage comparisons. CPZe was calculated for each subject treated with antipsychotic medications at T2. The mean CPZe for the total sample was 546.5 mg/day (range, 10.0–2933.3 mg/day), which was significantly higher than at T1 (mean = 416.8 mg/day; $t = 2.2$, df = 77, $p < .05$). There was no significant difference between the 3 antipsychotic groups regarding dosage at T2 (see Table 2), although there had been a difference at T1.[16] There was also no difference in dosage between switched and unswitched patients.

When the mean CPZe dose was used to divide the patients into low- and high-dosage groups, we found that those prescribed high doses visited the clinic more often in the 2-year period (mean = 44.0 visits) than those prescribed low doses (mean = 31.5 visits; $F = 4.5$, df = 1,79; $p < .05$). There were no differences found between dosage groups in their use of other psychiatric services. The large range of dosage prompted an investigation of psychiatric service use of those prescribed very high doses (defined as > 1000 mg/day CPZe[23]). Although the 7 patients who took these large dosages did not differ significantly from the rest of the group in demographic or clinical variables, there were some trends in psychiatric service use. Patients prescribed very high doses tended to visit the clinic more often (mean = 53.7 visits) than those prescribed lower doses (mean = 34.1 visits; $F = 3.8$, df = 1,79; $p = .05$). There was also a trend toward use of a greater number of psychiatric bed days in the 2-year period (mean = 35.7 days) compared with those treated with lower doses (mean = 9 days; $F = 3.9$, df = 1,79; $p = .05$).

Adjuvant Medications

Table 3 shows the proportion of those prescribed each type of adjuvant therapy for each antipsychotic medication type. The types of adjuvant medications were many, and many patients were prescribed more than 1 kind. These included anticholinergic medications, anxiolytic medications, antidepressants, and mood stabilizers or anticonvulsants. Anxiolytics were the most frequently

prescribed, to 43% (N = 36) of all patients. The 2 anxiolytics most frequently prescribed were clonazepam and lorazepam, each with 36% of anxiolytic prescriptions. Twenty percent of all patients (N = 17) were prescribed antidepressant medications. The most frequently prescribed antidepressant was paroxetine, with 47% (8/17) of antidepressant prescriptions. Although 30% (11/37) of the patients taking atypical antipsychotics were prescribed antidepressant medication, compared with 14% (4/29) of those prescribed conventionals and 13% (2/16) of those prescribed a combination, this difference was not statistically significant (see Table 3).

Anticholinergic medications were prescribed for 30% (N = 25) of the patients. Only 8% (3/37) of patients taking atypicals were prescribed anticholinergics, compared with 45% (13/29) of those prescribed conventionals and 56% (9/16) of those prescribed a combination of antipsychotics (see Table 3). The most frequently prescribed anticholinergics were procyclidine (52% [13/25] of anticholinergic prescriptions) and benztropine (32% [8/25] of anticholinergic prescriptions). Finally, 28% of the patients (N = 23) were prescribed mood stabilizers. The majority (48% [11/23]) of these prescriptions were for valproic acid, and 43% (10/23) were for lithium carbonate.

A comparison of the use of adjuvant medication at both T1 and T2 reveals that, in patients for whom data were available at both time periods, 35% of patients (22/62) were prescribed anxiolytics; 26% (16/62), mood stabilizers or anticonvulsants; 19% (12/62), anticholinergics; and 10% (6/62), antidepressants (prescription data at T1 were missing for the 21 dual-diagnosis patients).

DISCUSSION

The purpose of this study was to investigate the prescriptions of a random sample of outpatients (N = 83) with long-term psychiatric disorders, to determine the use of atypical antipsychotic medication 2 years after an initial investigation. The possibility of a relationship between the prescription of different types of antipsychotics and both the use of psychiatric services and the prescription of adjuvant medications was also investigated. Another goal was to study the prescription status of a subgroup of patients treated with a combination of antipsychotic types at T1.

Two years later, 19% of all patients were prescribed a combination of conventional and atypical antipsychotics. It had been expected that patients prescribed a combination of antipsychotics would be lower functioning and more prone to relapse, but no difference was found in their use of psychiatric services in the 2-year period compared with those treated with only conventional or atypical antipsychotics 2 years later. Further, 45% of those who were prescribed combined antipsychotics at the beginning of the study period were also prescribed a combination 2 years later. Six of these 9 patients remained on treatment with the same combination prescription for more than 2 years, and the other 3 patients, for more than 1 year. The fact that these patients continued on a combined regimen may indicate some difficulty with medication response. However, this subgroup did not differ from the rest of the sample in terms of their use of psychiatric services, so one can assume that they did not experience a severe relapse of symptoms or an increase of side effects. It seems that these patients constitute a group of their own.

The present study also investigated the service use differences between patients who had been switched from one type of antipsychotic to another and those who had not. Patients who were switched tended to have more psychiatric hospitalizations and psychiatric emergency visits in the 2-year period. This finding indicates that, as might be expected, patients who need to switch antipsychotic medication types might be those who experience more side effects or symptom relapses, necessitating increased use of psychiatric services. Another interpretation is that the switch process may prompt a relapse in some cases.

We also explored the relationship between the use of adjuvant medication at 2 years and the type of antipsychotic prescribed. A similar proportion of patients in each antipsychotic group took adjuvant medications, except for anticholinergics, which were prescribed to only 8% of those patients taking atypicals. This is a much smaller percentage than the 29% reported by Procyshyn et al.[24] and the 75% reported by Williams et al.[25] Perhaps the difference lies in differing clinical guidelines regarding anticholinergic medication prescriptions.[26]

An examination of the literature regarding the combination of conventional and atypical antipsychotic medication reveals very little. Most of the literature concerns the broader concept of polypharmacy, which also covers the combination of 2 or more conventionals, or 2 or more atypicals. A reexamination of the prescription data at 2 years in the present study reveals that, overall, 30% of the patients were prescribed 2 different antipsychotic medications. Although based on a fairly small sample size, this percentage compares unfavorably to the majority of antipsychotic polypharmacy percentages reported in other studies, which range from 3.8% to 24.3%.[11–13,25,27,28] The figures in the present study are more similar to the antipsychotic polypharmacy discharge prescription rates (28%) of an extremely ill group of 229 schizophrenic patients discharged after a mean hospital stay of 1 year.[24] One might expect that such a group of subjects may be less responsive to medication, and thus need polypharmacy strategies. A post hoc investigation of the present study revealed no differences in psychiatric service use between those prescribed multiple antipsychotics and those prescribed 1 only, so it is unclear why the present sample of patients was prescribed multiple antipsychotics. The following is a search for an explanation.

Breaking down the polypharmacy prescription data further reveals that 24% (N = 7) of the patients on treatment with conventional antipsychotics were prescribed 2 different conventionals; in 57% of these cases, the second medication was a depot preparation. Only 1 of the patients prescribed atypicals was prescribed 2 atypical medications: risperidone and clozapine. Twenty-five percent (N = 4) of the patients prescribed combined antipsychotics received depot preparations of the conventionals, and only 1 patient was prescribed a conventional with clozapine. Therefore, the high percentage of polypharmacy in the present study cannot be fully explained by the necessity of using depot preparations or by combined use with clozapine, which are part of clinical recommendations.[1,3,5]

Fifty-three percent of patients prescribed multiple antipsychotics were prescribed a combination of conventionals and atypicals. This proportion is somewhat smaller than figures reported in other studies of combined antipsychotic medication strategies, in which between 56% and 85% of patients prescribed multiple antipsychotics were prescribed a combination of conventionals and atypicals.[11–13,24,28] Perhaps the 19% ratio of patients prescribed combined antipsychotics overall in the present study reflects a higher rate of antipsychotic polypharmacy in this outpatient service in general. An examination of prescription profiles by physician lends support to this idea, as each physician in our outpatient clinic prescribed antipsychotic polypharmacy to at least 2 patients at T2.

This study is retrospective, cross-sectional, and based on chart review only, so it has obvious limitations. Mental health services are sectorized in Quebec, Canada, so that patients needing psychiatric hospitalization will be treated in their sector hospital. However, those seeking help in psychiatric emergency will be treated at any hospital, unless hospitalization is indicated. Therefore, this naturalistic study is unable to give a complete listing of psychiatric emergency statistics. However, in the clinical field of switching to atypical antipsychotics, the literature is still scarce. There is a clear and urgent need for more data, especially coming from naturalistic studies. Randomized clinical trials have limitations of their own, as they are of short duration, have numerous exclusion criteria, and may not reflect the usual clinical situation, where patients may also be abusing street drugs and/or alcohol.

The present investigation of the use of psychiatric services did not differentiate between patients prescribed combination antipsychotic therapy and those not, as expected, nor between those prescribed multiple antipsychotics and those not. The reasons for antipsychotic polypharmacy prescription are an important issue deserving of further study; at this point, we can only speculate that our results may reflect a strategy of slow crossover from one antipsychotic to another, a strategy that may be more common than expected.

Drug names: benztropine (Cogentin and others), chlorpromazine (Thorazine and others), clonazepam (Klonopin and others), clozapine (Clozaril and others), lorazepam (Ativan and others), olanzapine (Zyprexa), paroxetine (Paxil), procyclidine (Kemadrin), quetiapine (Seroquel), risperidone (Risperdal), valproic acid (Depakene and others).

REFERENCES

1. Basset A, Addington D, Cook P, et al. Canadian clinical practice guidelines for the treatment of schizophrenia. Can J Psychiatry 1998;43 (suppl 2):25S–40S
2. Masand PS, Berry SL. Switching antipsychotic therapies. Ann Pharmacother 2000;34:200–207
3. Miller AL, Chiles JA, Chiles JK, et al. The Texas Medication Algorithm Project (TMAP) schizophrenia algorithms. J Clin Psychiatry 1999;60: 649–657
4. Tempier R. Quality of life and schizophrenia: the impact of novel antipsychotic medications. Can Psychiatr Assoc Bull 1999;31:144–146
5. The Expert Consensus Guideline Series: Treatment of Schizophrenia. J Clin Psychiatry 1996;57(suppl 12B):5–27
6. Stahl SM. Antipsychotic polypharmacy, pt 2: tips on use and misuse [BRAINSTORMS]. J Clin Psychiatry 1999;60(suppl 8):506–507
7. Desai NM, Huq Z, Martin SD, et al. Switching from depot antipsychotics to risperidone: results of a study of chronic schizophrenia. Adv Ther 1999;16:78–88
8. Littrell KH, Johnson CG, Hilligoss NM, et al. Switching clozapine responders to olanzapine. J Clin Psychiatry 2000;61:912–915
9. Noordsy DL, O'Keefe C, Mueser KT, et al. Six-month outcomes for patients who switched to olanzapine treatment. Psychiatr Serv 2001;52:501–507
10. Stahl SM. Antipsychotic polypharmacy, pt 1: therapeutic option or dirty little secret? [BRAINSTORMS] J Clin Psychiatry 1999;60(suppl 7): 425–426
11. Clark RE, Bartels SJ, Mellman TA, et al. Recent trends in antipsychotic combination therapy of schizophrenia and schizoaffective disorder: implications for state mental health policy. Schizophr Bull 2002;28: 75–84
12. Covell NH, Jackson CT, Evans AC, et al. Antipsychotic prescribing practices in Connecticut's public mental health system: rates of changing medications and prescribing styles. Schizophr Bull 2002; 28:17–29
13. Weissman EM. Antipsychotic prescribing practices in the Veterans Healthcare Administration–New York Metropolitan Region. Schizophr Bull 2002;28:31–41
14. Essock SM. Antipsychotic prescribing practices. Schizophr Bull 2002;28:1–4
15. Miller AL, Craig CS. Combination antipsychotics: pros, cons, and questions. Schizophr Bull 2002;28:105–109
16. Tempier R, Pawliuk N. Influence of novel versus conventional antipsychotic medication on subjective quality of life. J Psychiatry Neurosci 2001;26:131–136
17. Weiden PJ, Casey DE. "Polypharmacy": combining antipsychotic medications in the treatment of schizophrenia. J Pract Psychiatry Behav Health 1999;5:229–233
18. Tempier R, Pawliuk N, Perreault M, et al. Satisfaction with clinical case management services of patients with long-term psychoses. Community Ment Health J 2002;38:51–59
19. Gill K, Tempier R, Negrete JC. Quality of Care for the Chronic Mentally Ill: Focus on Dual-Diagnosis and Treatment Outcome. Final Report. Health Canada, National Health Research and Development Program; May 1999; Ottawa, Ontario, Canada
20. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition. Washington, DC: American Psychiatric Association; 1994
21. American Psychiatric Association. Practice Guidelines for the Treatment of Patients With Schizophrenia. Washington, DC: American Psychiatric Association; 1997:17
22. Norusis M. SPSS for Windows: Base System User's Guide, Release 10.0. Chicago, Ill: SPSS Inc; 1999
23. Walkup JT, McAlpine DD, Olfson M, et al. Patients with schizophrenia at risk for excessive antipsychotic dosing. J Clin Psychiatry 2000;61: 344–348
24. Procyshyn RM, Kennedy NB, Tse G, et al. Antipsychotic polypharmacy:

a survey of discharge prescriptions from a tertiary care psychiatric institution. Can J Psychiatry 2001;46:334–339
25. Williams CL, Johnstone BM, Kesterson JG, et al. Evaluation of antipsychotic and concomitant medication use patterns in patients with schizophrenia. Med Care Suppl 1999;37:AS81–AS86
26. Bhanji NH, Tempier R. Managing schizophrenia during the stable phase: is there consensus among practice guidelines? Can J Psychiatry 2002;47:76–80
27. Wang PS, West JC, Tanielian T, et al. Recent patterns and predictors of antipsychotic medication regimens used to treat schizophrenia and other psychotic disorders. Schizophr Bull 2000;26:451–457
28. Leslie DL, Rosenheck RA. Use of pharmacy data to assess quality of pharmacotherapy for schizophrenia in a national health care system: individual and facility predictors. Med Care 2001;39:923–933