Medical Decision Making in Antipsychotic Drug Choice for Schizophrenia

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Objective: The influence of patient and physician variables on antipsychotic drug choice for patients with schizophrenia was assessed.

Method: Interviews with 100 psychiatrists on drug choice for 200 patients suffering from schizophrenia were conducted. Data were analyzed by using multiple logistic regression.

Results: Older physicians were up to five times more likely to prescribe first-generation antipsychotics. Patient variables did not influence treatment decisions significantly.

Conclusions: There is an urgent need for more research on clinical decision making and quality management.

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The research field of "medical decision making" attempts to explore, explain, and alter physician decision making. Despite hundreds of studies on the efficacy of psychotropic drugs and in spite of the plethora of market research, surprisingly little has been undertaken to scientifically explore decision making of physicians in, for example, antipsychotic drug choice. Thus, to date there is no satisfactory explanation of the gap between an increasing number of treatment guidelines that recommend second-generation antipsychotics as first-line agents for patients with schizophrenia (1, 2) and prescription data that show first-generation antipsychotics are still being prescribed for a considerable proportion of patients (3).

We therefore undertook a cross-sectional study to clarify psychiatrist decision making when choosing antipsychotic drugs for patients with schizophrenia.

Method

Semistructured interviews were carried out with 100 psychiatrists in the greater Munich area in Southern Germany. The sample consisted of 50 psychiatrists in private practice and 50 psychiatrists working in eight different psychiatric hospitals. To recruit

TABLE 1. Relationship of Patient Characteristics and Physician Variables to Antipsychotic Drug Choice for 100 Physicians Interviewed About 200 Patients With Schizophrenia[a]

Variable	All Patients (N=200)		Patients Receiving Atypical Antipsychotics (N=157)		Patients Receiving Classical Antipsychotics (N=43)		Difference Between Atypical and Classical Compounds	
							Mann-Whitney U (z scores)	
	Mean	SD	Mean	SD	Mean	SD		p
Patient characteristics								
Age (years)	39.6	12.8	38.4	12.0	44.0	14.6	−2.29	0.03
Duration of illness (years)	10.7	9.7	9.9	8.9	13.6	11.9	−1.66	0.10
CGI rating								
Positive	4.4	1.6	4.3	1.6	4.8	1.5	−1.78	0.08
Negative	3.8	1.7	3.8	1.7	3.7	1.6	−0.04	0.98
	N	%	N	%	N	%		p[b]
Outpatient	100	50	74	47	26	61		0.17
Female	90	45	75	48	15	35		0.17
Number of hospitalizations							χ^2=2.93, df=1	0.24
0 or first admission	50	25	40	25	10	23		
1–5	104	52	85	55	19	44		
>5	46	23	32	20	14	33		
Negative experiences with classical antipsychotics	38	19	35	22	3	7		0.03
Good previous compliance as rated by the physician	156	78	126	80	30	70		0.15
Distinct wish for or against a certain compound	66	33	58	37	8	19		0.05
							Mann-Whitney U (z scores)	
	Mean	SD	Mean	SD	Mean	SD		p
Physician variables								
Age (years)	44.6	9.3	43.4	8.9	49.0	9.2	−3.28	0.001
Work experience (years)	14.4	9.7	13.3	9.1	18.4	11.0	−2.65	0.008
Estimate of cost of 15-mg olanzapine (euros)[c]	7.0	3.4	6.7	3.4	8.1	3.1	−2.61	0.009
	N	%	N	%	N	%		p[b]
Female gender	82	41	69	44	13	30		0.12
"Costs are an important factor"	52	26	39	25	13	30		0.56

[a] Each physician was asked about the drug choice for two patients for whom antipsychotic medication was initiated or switched (private practice psychiatrists, N=50) or the next two patients discharged from the ward for whose medication the physician was responsible (hospital-based physicians, N=50).
[b] Fisher's exact test.
[c] Actual price was 12 euros.

physicians in private practice, all psychiatrists in the Munich area treating patients with schizophrenia were requested to participate (N=83). Of these, 50 physicians took part in the study (60%). We contacted nine psychiatric hospitals in the region (two university hospitals and seven state hospitals), and all but one agreed to participate. Physicians working in wards where patients with schizophrenia were treated were then selected for the interviews. Physicians in private practice were older than their hospital-based colleagues (mean age=49.8 years [SD=7.9] versus 39.4 years [SD=7.5], respectively) (t=6.86, df=98, p<0.001) and had more work experience (mean time working in psychiatry: 20.6 years [SD=8.4] versus 8.1 years [SD=6.4]) (t=8.32, df=98, p<0.001). There were no significant between-group differences in terms of percentage of female physicians (40% versus 42%).

All physicians were interviewed as to their antipsychotic drug choice (first-generation antipsychotics versus second-generation antipsychotics, both including depots) for patients with a diagnosis of schizophrenia or schizoaffective disorder. Psychiatrists in private practice were questioned with regard to the two patients for whom they had last switched or initiated antipsychotic medication. Hospital physicians described the next two patients to be discharged from their wards for whose medication they were responsible.

The age, gender, and professional experience of each physician was recorded. Physicians were further asked whether the docu-

mented patient had negative experiences with conventional antipsychotics and whether the patient had expressed a wish for or against a certain antipsychotic substance. All physicians also rated the influence of drug costs on their prescribing habits and estimated the daily drug costs for an atypical compound (olanzapine). The age, gender, duration of the illness, and number of hospitalizations were recorded for all patients. In addition, the physicians rated psychopathology (with separate Clinical Global Impression [CGI] ratings for positive and negative symptoms) and the compliance of each patient.

Outpatients had significantly fewer previous hospitalizations than inpatients (χ^2=24.04, df=2, p<0.001) and lower CGI ratings for negative symptoms (t=−3.83, df=188, p<0.001). No significant differences between inpatients and outpatients were found regarding age, gender, prescribed antipsychotic class, diagnoses, duration of illness, or CGI ratings for positive symptoms.

In a first step, chi-square tests, Fisher's exact tests, or Mann-Whitney tests were performed to search for variables influencing the choice of drug class. Then we randomly assigned the two patients of every physician into one of two groups: a training group and a confirmative group. Both groups were then analyzed by using multiple logistic regression. Quantitative variables were categorized using receiver operating characteristics analysis when appropriate. Significance level was set to 5%; all tests were performed two-sided.

Results

Univariate comparisons (Table 1) showed that older patients, patients with a longer course of illness, and patients with high CGI ratings for positive symptoms were more likely to receive first-generation antipsychotics. On the contrary, patients who expressed a distinct wish for or against a certain antipsychotic compound or patients who had previous bad experiences with first-generation antipsychotics were more likely to receive second-generation antipsychotics. On the part of the physicians, those who were older, had more work experience, or estimated the price of olanzapine as being higher were more likely to prescribe classical compounds. Noteworthy is the fact that the actual price of the second-generation antipsychotic was underestimated by 90% of the physicians.

Using multiple logistic regression, the physician's age (>50 or ≤50 years) (odds ratio=4.5, 95% CI=1.3–10.3; p= 0.008), poor compliance (odds ratio=3.4, 95% CI=1.1–10.8; p<0.04), and the duration of the illness (odds ratio=1.1, 95% CI=1.0–1.1; p<0.03) entered the model and independently influenced the decision toward the prescription of a conventional antipsychotic in the training group. When these variables were entered in the confirmative group, only the physician's age (odds ratio=4.7, 95% CI=1.5–15.1; p=0.01) showed a significant influence on the outcome variable (compliance: odds ratio=1.3, 95% CI=0.3–5.1 [p<0.70]; duration of illness: odds ratio=1.0, 95% CI=1.0–1.1 [p<0.35]).

Discussion

In our study the age of the prescribing psychiatrist was the only variable that predicted the prescription of a conventional antipsychotic in the logistic regression analysis. All other variables that showed a relationship with the prescription of typical versus atypical compounds in the univariate analyses (respecting patients' wishes, prescribing according to previous response, and avoiding previous side effects) can be weighted only as hypothesis generating.

Limitations of our study are the relatively low percentage of patients receiving first-generation antipsychotics and the fact that we display only correlations between variables and treatment decisions and cannot attribute this to the motivations of the physicians. We decided not to present case vignettes, since answers then might be biased by social desirability, and "hypothetical" decisions might well differ from real-world decisions. The same problem arises for qualitative interviews asking physicians directly for their reasons for a specific drug choice.

Our main finding (patients treated by older physicians are about five times more likely to receive first-generation antipsychotics than patients treated by younger physicians) might demonstrate that physicians stick to drugs they know best or they became accustomed to during their training. Thus, younger physicians might not be well acquainted with first-generation antipsychotics other than the "classical" antipsychotic haloperidol, whereas older physicians are familiar with such drugs as pimozide, perazine, or flupentixol and therefore still use them more frequently. This would go along with findings from other medical fields in which physicians who had more recently graduated were more likely to adopt early new drugs such as antidepressants, antimicrobials, or cardiovascular agents (4).

The fact that patient variables did not play a prominent role (although the positive trends in the univariate analyses were reasonable and supported by clinical evidence) is somehow disappointing, since the drug chosen should fit the patient, not the physician.

Similar results have been reported from other medical fields. Solomon et al. (5) showed that physician preference is a more important determinant in prescribing COX-2-inhibitors than are patient variables. Linden and Gothe (6) reported that physicians who had personal experiences in taking benzodiazepines were more likely to prescribe these drugs to their patients than colleagues who had never taken benzodiazepines themselves. Also, interventions from the drug industry are another example of the importance of physician-related factors—physicians who frequently see drug industry representatives prescribe new drugs more often (7).

In our view, the importance of physician variables indicates the urgent need for investing in research on clinical decision making and quality management, especially since medical decisions often have an enormous economic impact.

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