New vs. Old Antipsychotics: The Texas Experience

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A study was conducted in Texas state psychiatric facilities of 299 patients with schizophrenia who were taking clozapine, comparing them with 223 matched controls taking traditional neuroleptics. From 12 months before until 54 months after clozapine was begun, hospital bed days and the associated costs were determined for both groups. The clozapine group had appreciably fewer hospital bed days throughout the study period. Substantially fewer clozapine-treated patients than neuroleptic-treated patients required 180 continuous days of hospitalization during the study. By 48 months after initiation of clozapine, hospital inpatient costs were $27,850/patient/year lower in the clozapine group than in the traditional neuroleptic group. Agranulocytosis occurred in < 1% of patients taking clozapine; all recovered quickly. In a separate study, clozapine therapy was shown to produce a 5-fold decrease in the rate of suicide among patients with schizophrenia. Administration of clozapine appears to lower the overall cost of treating schizophrenia by reducing the costs associated with hospitalizations. *(J Clin Psychiatry 1999;60[suppl 1]:23–25)*

When cost effectiveness of psychiatric treatment is an issue, clinicians must demonstrate several types of success. Scientific data on clinical effectiveness alone usually do not convince legislators, insurers, managed care organizations, or system administrators in charge of funding of the value of a new agent. To be convincing, the data must (1) be based on research and be scientifically and clinically valid; (2) demonstrate relief of suffering; and (3) demonstrate significant monetary savings.

Documenting the last is the most difficult because cost savings from new medications, unless studied over the long term, sometimes superficially seem equivocal. In addition, collection of financial data requires consideration of all relevant costs, effects, and savings, not just the obvious ones such as savings from decreased hospitalization.

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A detailed paper with the methodology, results, and discussion of the bed-days data herein has been published in The Journal of Clinical Psychiatry *(1998;59:189–194). A paper detailing the methodology and results of our study of clozapine and suicide prevention among patients with schizophrenia and schizoaffective disorder has been submitted for publication.*

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STUDY OF CLOZAPINE IN INSTITUTIONALIZED PATIENTS

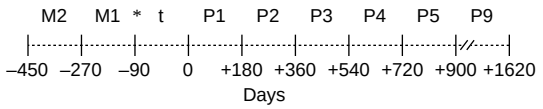
We have conducted 2 retrospective studies of hospitalization among all patients who began clozapine treatment in Texas state psychiatric facilities during the early 1990s, comparing them with controls who received traditional neuroleptics.[1,2] The 2 groups were similar for severity of illness and for age, sex, and other demographic characteristics. All patients were among those generally considered "treatment resistant."

In the more recent study,[2] which involved 299 clozapine patients and 223 controls, the number of hospital bed days was calculated for eleven 6-month time periods, from 12 months before to 54 months after beginning clozapine (Figure 1).

As in the first study, there was a rapid and continuing decrease in hospital bed-days in the clozapine group compared with the traditional neuroleptic treatment group (Table 1).[1,2] Analysis of hospitalization costs demonstrated savings with the use of clozapine for all post-clozapine study intervals (Table 2). During the initial stages of the study, additional days of hospitalization probably occurred because of administrative factors associated with the use of a new drug, such as community clinics not being prepared to care for clozapine patients and delays for funding transfers.

Follow-up data for patients discharged from state hospitals showed that substantially more patients in the traditional medication group than in the clozapine group required 180 days of *continuous* hospitalization (Table 3). At 2.5 years, for example, twice as many traditional medica-

Figure 1. Study Design†



†From reference 2. Number of hospital bed days per 180-day period was recorded for patients taking clozapine and those taking traditional neuroleptics. M2, M1 = pre-clozapine or pre-index (for controls) 180-day periods. * = start clozapine. t = 90-day titration period (also added to controls). P1, P2, P3, P4… = 180-day clozapine use periods.

Table 1. Days of Hospitalization for Patients on Traditional Medications or Clozapine (bed days/patient/year)*

Time Period	Traditional Medication	Clozapine	Difference
M1	348.2	280.4	67.8
P1	307.2	238.4	68.8
P2	288.8	182.7	106.1
P3	271.8	152.0	119.8
P4	252.6	132.6	120.0
P5	220.4	118.0	102.4
P6	200.0	121.6	78.4
P7	193.8	90.6	103.2
P8	183.0	71.6	111.4

*Data from reference 2.

Table 2. Hospital Inpatient Costs for Patients on Traditional Medication or Clozapine (dollars/patient/year)*

Time Period	Traditional Medication	Clozapine	Difference
M1	$87,050	$70,100	$16,950
P1	76,800	59,600	17,200
P2	72,200	45,675	26,525
P3	67,950	38,000	29,950
P4	63,150	33,150	30,000
P5	55,100	29,500	25,600
P6	50,000	30,400	19,600
P7	48,450	22,650	25,800
P8	45,750	17,900	27,850

*Data from reference 2.

tion patients as clozapine patients had continuous hospitalization during at least one 6-month period. At 4 years, 4 times as many had required a 6-month period of continuous hospitalization.

Although there was a gradual increase in the percentage of traditionally medicated patients who did not require *any* state hospitalization during a 180-day time interval (~ 18% at 1.5 years, ~ 45% at 4 years), the increase for clozapine patients was substantially greater (~ 47% at 1.5 years, ~ 74% at 4 years; Table 4).

Based on these data, the potential annual hospital saving (excluding drug costs) of using clozapine is between $20,000 and $30,000 per patient per year (Figure 2).[3] This is a conservative estimate, calculated on an estimated cost of hospitalization of $250/day/patient amortized over all intensive care, acute care, extended care, and physician and therapist costs.

Table 3. Patients Requiring 180 Days of Continuous Hospitalization*

Follow-Up Period	Traditional Medication Patients	Clozapine Patients
1.5 y	58.3%	27.4%
2.5 y	42.2%	19.7%
3.5 y	39.0%	13.9%
4.0 y	45.7%	11.1%

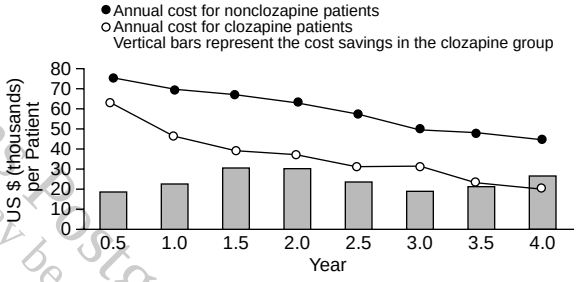
*Data from reference 2.

Table 4. Patients Not Requiring Hospitalization for 180 Continuous Days*

Follow-Up Period	Traditional Medication Patients	Clozapine Patients
1.5 y	17.9%	46.8%
2.5 y	28.3%	60.5%
3.5 y	40.8%	70.3%
4.0 y	44.8%	74.1%

*Data from reference 2.

Figure 2. Potential Annual Savings in Hospital Costs Associated With Clozapine Therapy*



*Data from reference 2.

Although the risk of agranulocytosis is the first concern expressed by physicians beginning patients on clozapine therapy, we found that clozapine was safer overall than other antipsychotic medications, including the phenothiazines and haloperidol. Our rate of leukopenia, agranulocytosis, and seizures was somewhat below expected. No clozapine patient experienced permanent disability or death due to the drug.

SUICIDE

Suicide is one of the leading causes of death among patients with schizophrenia and schizoaffective disorders. Although the suicide rate in the U.S. general population is about 25/100,000/year,[4,5] the rate among schizophrenic patients is approximately 250/100,000/year.[4,6,7] In addition, many schizophrenic patients may "accidentally" die due to impulsive or self-injurious behavior such as substance abuse.

A 6-year retrospective study of more than 33,000 psychiatric patients in the Texas public mental health system compared overall suicide data with data on patients with schizophrenia or schizoaffective disorders (W.H.R.; M. Mason; T. Hogan, unpublished data, 1998). The 2 groups were demographically comparable by age and sex. The suicide rate for patients with schizophrenia or schizoaffective disorder was 63/100,000/year, roughly the same as that for all psychiatric patients in the system (60/100,000/year). There was only 1 suicide in 6 years among patients receiving clozapine (an average of 952 patients each year), for a rate of 12.7/100,000/year, a 5-fold decrease. (Clozapine patients were defined as those who had taken or were presumed to have taken the drug within 30 days prior to death. Two patients who had discontinued clozapine several months before they killed themselves were not included.) This rate is similar to that reported by Walker et al. (15.5/100,000/year) using the Novartis U.S. clozapine database.[8]

CONCLUSION

The definition of cost effectiveness in psychiatric treatment includes alleviating personal misery, improving personal and social function, improving quality of life, and allowing patients to remain out of the hospital. For many patients, these goals can be promoted by access to clozapine and other atypical antipsychotic medications.

Concerns about the "cost" part of "cost-effective" sometimes make mental health systems and individual clinicians delay, or even refuse to provide, the care that is best for patients. Psychiatrists, mental health system administrators, and other providers need to "reset their drug cost thermostat" to accommodate routine use of the newer medications, which are more expensive to purchase but generally safer and more effective, and ultimately decrease hospitalization and overall cost.

Drug names: clozapine (Clozaril), haloperidol (Haldol and others).

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