

## DRUG TREATMENT IN SCHIZOPHRENIA : ISSUES OF COMPARABILITY AND COSTS

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### ABSTRACT

*Pharmacological intervention is the commonest mode of managing patients with schizophrenia. Both clinicians and patients are concerned that antipsychotic drugs are costly and contribute to poor drug compliance in India. This study compared the equivalent doses of antipsychotic drugs and their costs across brands. Results show that antipsychotic drugs are affordable and are comparable to drug treatment costs of other physical illnesses. However, coprescription of drugs add to the burden. Numerous brands and a 2-2½ fold difference in cost raises many concerns including that of drug bioavailability. Hence, the authors recommend consensus and formulation of guidelines for the pharmacological management of schizophrenia.*

*Key Words : Schizophrenia, drug comparability, cost.*

Schizophrenia has always been one of the most devastating groups of psychiatric illnesses, taking its toll on afflicted individuals as well as their families. Schizophrenia has been compared to chronic medical illnesses such as diabetes, albeit more complex (Kane and McGlashan, 1995). Treatment of this chronic, often progressing and deteriorating disorder has posed a great challenge, especially since the introduction of antipsychotic medications.

Treatment of schizophrenia occurs at the individual level, family level and at the level of the community. Individual level intervention consists of pharmacological treatment, counselling and vocational rehabilitation. It is difficult to assess the treatment of schizophrenia in terms of cost-benefit. Costs and outcomes are not the same for everyone. As problems and needs vary, so too will costs. Problems of an individual and family include ill-health, difficult behaviours, social skills deficits, and quality of life more generally. Costs can be estimated at three levels—individual user cost functions\* or

prediction, facility level cost functions, and system-level cost functions estimated for organizations or localities as a whole. Studies in the US have shown that the societal burden of schizophrenia was estimated to be \$32.5 billion in 1990 out of which \$17.9 billion was only towards treatment costs and \$14.6 billion towards productivity loss (National Mental Health Advisory Council, 1993).

Ever since the discovery of chlorpromazine (CPZ), there has been a constant search for newer antipsychotic drugs. Issues of costs as well as comparability across different antipsychotic drugs in terms of efficacy and side effect profile and factors influencing compliance have been important factors influencing the choice of antipsychotic drugs. These issues have become even more relevant with the introduction of the 'newer antipsychotic drugs'. In the 1970's there were about 5 companies manufacturing antipsychotic drugs (Current Index of Medical Sciences, CIMS, 1970). This number has grown more than eightfold presently (CIMS, 1998). CPZ

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for instance is manufactured by at least 20 companies and marketed under different brand names. Recently risperidone has been introduced by at least 10 companies.

While only 4-5 antipsychotic drugs were available in India in the 1970's (CIMS, 1970), over the last two decades this number has increased to about 12 (Drug Index, 1998). The number of brands available currently for each antipsychotic drug has steadily increased. With the influx of so many brands, it becomes increasingly necessary to examine issues of comparability across different pharmacological agents as well as individual user costs and discuss other issues that influence prescribing and compliance.

### MATERIAL AND METHOD

A. Assessment of comparability : Drug equivalents in terms of oral CPZ were tabulated from i) drug company literature - CIMS., Drug Index., and Monthly Index of Medical Sciences (MIMS), ii) the British National Formulary (1998), and iii) review of articles comparing different antipsychotic drugs (Comprehensive Text Book of Psychiatry, Sadock & Kaplan (1995), Psychopharmacology 4th generation, Bloom & Kuffer (1995), and Lehman & Steinwachs, 1998).

B. Assessment of cost : The prices of some of the commonly used antipsychotic drugs were compiled from the following sources :

1. The Consumers Cooperative Society at the National Institute of Mental Health and Neuro Sciences, Bangalore, where medications are available at a slightly subsidized rate.
2. The cash pharmacy, a government run dispensing unit in Bangalore.

The prices were listed as per the availability of different drug brands.

### RESULTS

The drug equivalents of all commonly available oral antipsychotic drugs in terms of CPZ 100 mg are specified in table 1. The equivalent dose of depot neuroleptics are presented in table 2. Table 3 provides the dose equivalence of depot

and oral antipsychotic drugs.

The prices of the commonly available oral antipsychotic drugs and the monthly expenditure for maintenance dose of 300 mg CPZ per day compiled in table 1. The cost-index (ratio of highest price to lowest) of each antipsychotic drug across different brands is also depicted in table-1. Table-1 also shows the relative cost of each antipsychotic drug compared to CPZ. Similarly the cost of available depot neuroleptics have been compared against the reference maintenance dose of 300 mg CPZ per day (Table 2).

### DISCUSSION

Schizophrenia is one of the commonest disorders seen by practising psychiatrists. Although schizophrenia affects less than 1% of the US population, the total costs of this severe mental disorder consumes 22% of the costs of all mental illnesses (Zito et al., 1998). Several carefully conducted cost studies have indicated that care in community is generally cheaper than care in a hospital, although none of these studies indicate that it is better (Goldberg, 1991). Cost functions are useful when evaluating, planning or purchasing alternative strategies or modes of care. However, no such studies comparing various drugs nor the models for treating schizophrenia have been carried out in our population. The various antipsychotic drugs that are available have helped significantly in symptom control. However, a surge in the availability of different antipsychotic drugs raises issues of drug choice and dose comparability. The clinicians prescription must be governed as much by the patient's purse as by the patient's need (Channabasavanna, 1996).

A comparison of cost of different antipsychotic drugs show that the monthly cost of maintenance with CPZ (300 mg) is Rs.55/- and that of trifluoperazine is Rs.25/- (the relative cost=0.45, table-1). Newer drugs like risperidone (4 mg/day) and clozapine (200 mg/day) costs as low as Rs.60/- and Rs.225/- per month respectively for the maintenance dose equivalent of CPZ (300 mg/day). In UK, newer

TABLE - 1  
DOSE EQUIVALENTS OF ANTIPSYCHOTIC DRUGS AND THEIR APPROXIMATE COST

Drugs	CPZ Equ(A) (100 mg/day)	Dose per tab. (mg) (B)	Price per 10 Tab (Rs) (C)	Cost* per month (Rs) (Z)	Cost- Index*	Relative Cost**
Chlorpromazine	100	100	6-15	55-135	2.5	1.0
Haloperidol	2-3	10	20-40	35-70	2.0	0.6
Trifluoperazine	5	10	5-10	25-45	1.8	0.4
Pimozide	1.5	4	20-50	70-170	2.4	1.3
Thioridazine	100	100	45-50	405-450	1.1	7.4
Loxapine	10-20	25	70	210	-	3.8
Flupenthixol	3	3	70	610	-	11.1
Risperidone	0.6-1	4	20-500	60-1500	25.0	1.1
Clozapine	50	100	42-48	225-300**	1.3	4.1

\* approximate cost of drugs as per month (Z) equivalent to 300 mg of CPZ/day ( $Z=90AxC+10B$ )

\*\* maintenance dose of 200 mg/day

† ratio of maximum to minimum cost across brands

‡ ratio of minimum cost of the antipsychotic drug per month to that of CPZ

pharmacological therapies for schizophrenia are considerably more costly than previously existing treatments. For example, the approximate average cost for a 30-day treatment with clozapine is £168, for risperidone £112. This compares with less than £30 for haloperidol (Davis and Drummond, 1993).

Prices of antipsychotic drugs have reduced in the last five years. However, there still remains marked price differences across brands. There is an almost 2-2½ fold difference in the price of drugs across various brands. Although partially explained by differing overhead costs across companies, this raises a concern among clinicians about the bioavailability across brands. There is competitiveness across pharmaceutical companies in order to offer the best product at the cheapest rate. To the clinician, this translates to maximum therapeutic efficacy at the minimum

cost. Thus, bioavailability is a serious concern while prescribing.

While on the face of it antipsychotic drugs seem 'affordable' the other costs associated with treatment make it more expensive. For example, antiparkinsonian agents are often co-prescribed. Antiparkinsonian agents are often more expensive than the antipsychotic drugs themselves. For example, the monthly cost of trihexyphenidyl (4mg/day) is Rs.20/- to Rs.50/- (Drug Index, 1998). Similarly when antidepressants, anxiolytics, hypnotics and so on are co-prescribed the costs increase.

The problem of cost is not exclusive for schizophrenia. Grossly, it appears that the cost of antipsychotic drugs is comparable to drug treatment costs of chronic physical illnesses such as tuberculosis, hypertension, diabetes and epilepsy.

In summary, we have attempted to provide comparisons across various antipsychotic drugs. Our analysis of cost suggests that most of the antipsychotic drugs are affordable. However, treatment expenditure of comorbidity, side effects,

TABLE - 2  
EQUIVALENT DOSES OF DEPOT NEUROLEPTICS

Drug	Dosage	CPZ Equiv. (mg/day)	Cost (Rs) per month
Fluphenazine decanoate	25 mg every 2 weeks	1000	40-60
Haloperidol decanoate	100 mg every 4 weeks	500	180-210
Flupenthixol decanoate	40 mg every 2 weeks	400	300

\* maintenance dose equivalent to 300 mg of CPZ per day

TABLE - 3  
CONVERSION OF ORAL TO PARENTERAL  
ANTI-PSYCHOTICS

Oral dose	Parenteral dose
Fluphenazine 10 mg/day	12.5 mg every 2 weeks
Haloperidol 10 mg/day	100 mg every 4 weeks
Flupenthixol 6 mg/day	20 mg every 2 weeks

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and cost of consultation including travel add to the burden. This may in turn influence compliance. The wide variation in cost of different brands of the same drug is also of concern to both prescribers and consumers. The issues raised in the article highlight several concerns and a need for action the most important being formulation of guidelines for pharmacological management of psychoses from an authorized body such as the Indian Psychiatric Society. For example, the Australian Legislative for the first time formulated guidelines including economic evaluation of a drug prior to government approval of new pharmaceutical products in addition to establishing efficacy and safety (Moscarelli, 1998). The cost analysis for the treatment of schizophrenia should include a broad range of direct and indirect outcomes rather than focussing on direct medical cost of the alternative therapies. There should be systematic procedures for monitoring and enforcing guidelines for economic evaluation. The other concerns are : a need for judicious use of co-prescribed drugs, ensuring availability of antipsychotic drugs at least in all districts, and constant monitoring of bioavailability of different antipsychotic brands.

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