



SCHIZOPHRENIA – COST OF ILLNESS

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ABSTRACT

The study deals with the pharmacoeconomic aspect of Schizophrenia. Schizophrenia is disabling group of brain and behavioral disorders and in this study the cost of illness of schizophrenia has been in calculated with a special consideration to the cost of drugs prescribed for the treatment. The study has been conducted in a tertiary care super-specialty hospital of Kerela, India. The participants of the study are patient having an acute episode of schizophrenia and who have admitted for the treatment of the same. An attempt has been made to find the direct cost incurred for the treatment of schizophrenia – an acute episode and study the various aspects related to it like the disparity of cost in males and females and variability in the cost due to the varied symptoms of the disorder. In the study it has been observed that the cost of drugs contributes a significantly less amount in the total cost of treatment of the disorder. Also, it has been observed that apart from the severity of symptoms a major impact factor on the cost of the drug are adverse effects associated with the antipsychotic treatment.

Keywords: Cost of Illness, Schizophrenia, Pharmacoeconomics.

INTRODUCTION

Pharmacoeconomics can be described to identify compare and measure the cost and consequences of pharmaceutical products and services.¹ In simple terms it is the judicious allocation of available pharmaceutical and health care resources to the competing alternate uses. Among various other applications Pharmacoeconomics measures the cost of illness that is the evaluation of the load or burden of a disease; this information helps the health policy makers to ensure proper allocation of resources and also prioritize a disorder or group of disorder which needs to be addressed to.²

Mental disorders rank high in the list of world disease burden. Mental disorders do cause considerable disability and reduce the productivity not just of the patient but the family members/caregivers also. In both developed and developing countries these disorders have become a major concern especially in relation to the cost of illness of the disease.³

One such onerous mental disorder is Schizophrenia. It has varied symptoms such as hallucinations, delusions, disorganized communication, poor planning, reduced motivation, and blunted affect, and hence is rightly referred to as a group of brain disorders. Like most other mental disorders schizophrenia too is classified on the basis of the presenting symptoms rather than its etiology. The prevalence of schizophrenia is estimated to be about 1% and increases if schizophrenia spectrum disorders and taken into account as well.⁴

Schizophrenia ranks among the ten leading causes of disability. It has a lasting impact not just on the patient but also on the family. Even though generally the recovery after the first episode is good, the chances of

relapse, co-morbidities, residual symptoms etc. are always high.⁵

In the treatment of schizophrenia choice of drugs is empirical, that is guided by the presenting symptoms, associated features and mood state, and on the type of side effect that is more acceptable in a particular patient. Individual patients differ in their response to different antipsychotics; there is no way to predict which patient will respond better to which drug.⁶

The initial treatment of an acute episode is aims to decrease agitation, hostility, combativeness, anxiety, tension, and aggression and, normalization of sleep and eating patterns. Usually the therapy is initiated and is titrated over a few days to an average effective dose. The second phase or treatment ensures a steady though slow improvement in the symptoms and here the psychotherapy that is to increase socialization and improvement in self care habits and mood should also be considered. Following this comes the maintenance therapy where the goal is to prevent relapse of the disease, it is a more crucial and difficult for patient who have suffered multiple acute episodes. Also, treatment of resistant schizophrenia poses a challenge to mental healthcare professionals and often requires a combination of two or more antipsychotic and nonantipsychotic medications.⁷

The effectiveness of antipsychotic medications was viewed with skepticism in the sixties. A study conducted in the year 1995 by the Schizophrenia Patients Outcomes Research Team (SPORT) reported that the 70% of the patient on antipsychotic treatment achieved remission compared to the significantly less 25% who remitted with a placebo. Timely pharmacotherapy in schizophrenia not only helps in improving the patient's condition by



relieving of symptoms but a delay of therapy may also alter the long term course of the disorder for worse.⁸

Apart from the normal course of treatment what adds to the burden of this disorder are the side-effects associated with the antipsychotic medications. The most plaguing ones are the extra pyramidal side-effects associated mainly with the first generation antipsychotics especially neuroleptic induced acute anesthesia. In addition other side-effects like dyskinesia, anticholinergic adverse effects (like dry mouth, blurred vision etc) remain to be a major concern. Another commonly seen side-effect of the antipsychotic is Diabetes Mellitus, the prevalence of diabetes is twice as much in patients taking antipsychotic than in normal population. 62% of schizophrenics have been reported to be obese or over weight.^{7,8,9}

While a number of studies have been conducted in the developed countries to estimate the cost of care of Schizophrenia, there is considerably less data of the same in the developing countries.¹⁰ A study conducted in United States in 1988 calculated the cost of care for Schizophrenia to be \$129.3 billion, this cost is comprehensive of both direct and indirect costs. The study also stated that the large cost of illness of Schizophrenia is owing to its early age of onset, a need for lifelong medications, and high prevalence.¹¹ Another United States based study conducted in 1991 estimated the annual cost of Schizophrenia to be about \$ 65.1 billion where the direct medical cost was \$ 18.6 billion and indirect cost was \$ 46.5 billion.¹² Findings also show that the cost of illness of schizophrenia varies from 1.6% to 2.5% of the annual healthcare budgets.¹³ In France the costs associated with Schizophrenia were projected to about 2 % of the total medical costs and the hospitalization emerged as a major contributor to the estimated cost.¹⁴

Cost of Illness of Schizophrenia comprises of the cost of drugs and hospitalization, cost of rehabilitation therapy which as an important part of treatment, cost incurred for monitoring side-effects for example checking haemogram etc. In addition to the fore mentioned direct costs, a whole lot of indirect costs contribute to the burden of the illness. The Indirect costs are family costs of taking care of a sick member, monetary impact on the family income due to reduce productivity of the patient or the caregiver, certain studies also include cost associated with crime control, health insurance, and public campaigns.¹⁵

A wide variety of factors seem to affect the cost of treatment of schizophrenia like sex, age, choice of antipsychotic drug, severity of illness, duration of illness. There is a study suggesting that the cost of treatment is higher for men as compared to that for women¹⁶ where as another studies concludes the contrary that the cost is higher for women¹⁷. Similarly there are different opinions about the cost of treatment being more in the young¹⁶ or the older¹⁸. There is an ambiguity associated with most of the cost affecting factors and hence the data available remains inconclusive. The only factor that can be

considered with due importance is the severity of illness and extent of disability, as these are clearly directly proportional to the costs and have emerged as the consistent factors in a number of studies. The cost of treatment is certainly higher in patients with more severe symptoms and for patients enduring more disabilities.^{16, 19, 20}

Some researchers tend to believe that the choice of antipsychotics plays acts as a key contributor to the direct cost of illness of schizophrenia. CS Brown et al conducted a study that showed that the second generation antipsychotic drugs may contribute to a better quality of life but the due to the cost concerns the first generation antipsychotic continue to be the first line of treatment.²¹

A study conducted in India by Girish et al put forth the observation that the costs of antipsychotic drugs have a considerably less contribution to the total cost of illness. According to the study though the antipsychotics might be affordable, other costs associated with the treatment are more expensive.²² Another American study of the year 2000 showed similar result, the cost of drugs was only 3.7 % which is quite less compared to the cost of psychologists and community health centers – 27%, acute hospital care – 23.3%, psychiatric hospital care – 6.8%.²³

Antipsychotic drugs can be considered economic but during the treatment of schizophrenia the cost of nonantipsychotic drugs like antidepressants, mood stabilizers, etc play a vital role in estimating the cost of illness. There are a number of side-effects associated with the use of antipsychotic drugs which increase the cost of treatment directly and as well as indirectly. The treatment of schizophrenia requires long term therapy and sometimes lifelong therapy, this leads to the occurrence of some majorly disabling side-effects dyskinesia, hyperglycemia, etc. Even during the treatment of acute episodes adverse effects like nausea, vomiting, gastrointestinal, blurring of vision etc. ensue an augmentation of the cost of illness.

The costs incurred during the treatment of an acute episode of schizophrenia can be studied under the following categories :-

- Direct Costs – these includes the money spend for the treatment of the disorder like the money spent of medicines, hospitalization, consultations of psychiatrist and psychologist, out-patient services etc.
- Indirect Costs – these include the loss that results from the low productivity/disability of the patient and care giver.
- Intangible Costs – these refer to the loss that cannot be evaluated in monetary terms like social stigma, stress etc.¹⁵

The cost of treatment varies from individual to individual as do the symptoms. The cost of illness of schizophrenia takes up about 1.6% - 2.5% of healthcare budgets in the



developed countries.²⁴ In developing countries like India there are a limited number of studies relating to the cost of illness of mental disorders. Although even in countries like India and Pakistan the existing studies show that the cost of drugs is a small factor contributing to the total cost of illness of schizophrenia.¹⁵

MATERIALS AND METHODS

The study was conducted in a tertiary care hospital in Kerala, India for a period of six months. The in-patients diagnosed to have schizophrenia according to DSM IV criteria were included in the study. An attempt has been made to find the cost of treatment of acute episode schizophrenia, with a special regard to the cost of drugs.

The cost of treatment included the following cost factors

- Cost of Drugs – includes the cost of drugs for each patient was calculated by referring to their medical bills. The costs of both antipsychotic and nonantipsychotic medications used for the treatment have been considered. Also the cost medications prescribed at the time of discharge to be given till the next follow-up date has been included.
- Cost of Hospital Care – includes all the hospital expenditures like the cost of hospitalization, fees of the nursing and other healthcare staff, food, etc. The routine tests required like total blood count, lipid profile, blood glucose level have been included.
- Psychologists Consultation – includes the cost of psychotherapy and consultation to psychologist as and when required.
- Psychiatrist Consultation – includes the cost of daily consultation of the doctor in charge and the consultation of specialists as and when required.

The patients chosen to participate in the study were the patients who were having an acute episode of schizophrenia and were hospitalized during the study period. A total of 25 such patients were admitted in the Psychiatry ward during the study period. The total cost (sum of all the fore mentioned costs) was calculated for each patient and an average was found out. The idea was to find an approximate cost of illness for the region where the study was conducted.

RESULTS

A total of 25 patients were diagnosed to have schizophrenia according to the DSM IV guidelines and these participated in the study. The schizophrenia patients were approximately 11.11% of the total number patients admitted in the Psychiatry Ward at a given time during the study period. Out of the total 25 patient who participated in the study 52% (13) of the patients were female and 48% (12) were male. A significant number of patients – 9 (36%) – were suffering a relapse ensuing discontinuation of medications.

The patients participating in the study were having an acute episode and needed hospitalization for the control of symptoms, optimization of therapy, and initiation of rehabilitation or psychotherapy. The average time of hospitalization to achieve the fore mentioned goals was found to be 30 days on an average with a standard deviation of 22.53. The higher value of standard deviation shows the disparity in the population, that is the severity of the symptoms varied a lot in the patients and also the time required to control the symptoms and stabilize the patient showed major variations. Also, the study population included patients from both sexes male and female and were from different ethnic and religious back grounds, the socio-economic background of the patients also differed. The effects of this disparity were also noticed in the total cost of treatment for each patient.

The total average cost of treatment for an acute episode was calculated to be Rs. 13,214.58 (SD = 11,811.67). Where the cost of drugs required for the treatment was found to be 1431.11 (SD = 1362.492), which is 10.82% of the total cost of treatment. No variation in the cost of treatment for males and females was observed in the study. A total of 10 (40%) patients suffered from one or more of the following three side-effects namely gastrointestinal upset - 9 (32%), excessive-weight gain/ obesity 5 (20%), and hyperglycemia – 2 (8%). Due to the side-effects an extra expense incurred has also contributed as a factor in the variable cost of treatment and hence the larger value of standard deviation.

DISCUSSION AND CONCLUSION

There is a vast difference in the findings of the previous studies conducted mostly owing to the use of varied methodology. Also the number of such studies in the developing countries is limited.¹⁵

The cost of drugs contributes a small amount to the total cost of treatment generally in the range of 2 – 5.6%.²⁵ The study is in sync with this study though the percent contribution of the drugs is higher than the expected range it forms a considerably small amount of the total cost of treatment. The study is also in agreement with another study conducted by Girish et al which concluded that the cost of drugs for the treatment of schizophrenia contributes less than 10% to the total cost of treatment.²²

A study conducted by Grover et al in 2005 stated that the estimated direct annual cost of treatment of Schizophrenia is Rs. 13,687.38, cost of drugs being Rs.4460.88.²²

Studies show that schizophrenia is a burdensome illness and the treatment is expensive. The patients need to be hospitalized for almost a month, if the patient is the wage earner of the family it becomes all the more taxing. Apart from the patient the constant requirement of attention owing to the complexity of the disorder in addition to the other aspects can considerably hamper the productivity of the caregiver as well.²⁶ The results of this study concurs with the results of the study conduct by Girish et al that though the cost of drugs for the treatment can be



considered to be somewhat economic. Although the total cost of treatment of an acute episode can put some financial constraints on the families with low or medium income, the situation gets worse when the affected member is the bread winner of the family. During the study it was observed that 36% of patients experienced a relapse due to discontinuation of drugs this further emphasizes the need for lifelong medications and also shows the extra costs incurred due to discontinuation of medicines. This in turn adds to the burden not just in the form of cost medicines but also in the form of the expenses that arise due to the frequent side-effects of the antipsychotic drugs. For example out of the 25 patients 8 (32%) patients experienced gastric discomfort for which proton pump inhibitors and antiemetic drugs had to be prescribed. As the study was conducted in a super specialty hospital extra care was taken to monitor and treat the side-effects, but in out-patients the occurrence of the adverse effects of the drugs might be higher and the treatment more taxing.

Studies have shown that sex ratio of male and females affected by schizophrenia is relatively even.²¹ Though some researches show that the cost of treatment is higher for women¹⁷ and others concluded vice versa that the cost of treatment happens to be higher for men¹⁶. No such difference was noticed in the study, the direct cost of treatment for men and women was calculated and no significant difference in the cost could be identified. This observation though cannot refute that there may be a considerable difference where the indirect costs associated with the disorder are to be taken into account, in that scenario the total cost of treatment might vary.

Though the results of the study are in accordance to studies previously conducted, there are certain limitations associated with the study. Only a limited number of patients could be obtained during the study time, had the study period been longer the more relevant results could have been obtained. Also there were major disparities between the patients such as ethnic, religious and socio-economic backgrounds and some difference in the severity of the symptoms which led to variable values of the cost of overall treatment and individual cost for drugs. This led to a larger value of standard deviation. If the scope of the study could be broadened more conclusive results could have been drawn from the study.

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