

Cost of Treatment and Antipsychotic Drug Use Pattern in Schizophrenia

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Abstract- Schizophrenia is a long-term mental disorder of a type involving a breakdown in the relation between thought, emotion, and behavior, leading to faulty perception, inappropriate actions and feelings, withdrawal from reality and personal relationships into fantasy and delusion, and a sense of mental fragmentation. The long-term treatment of schizophrenia usually involves continuous specialty mental health care, including maintenance therapy with antipsychotic agents. A comparison study was conducted between a government sector hospital and private sector hospital. A questionnaire was utilized to collect the data. Study was conducted on 50 patients (25 from each hospital) from both the hospitals including in patients as well as outpatients. Cost associated with the treatment of schizophrenia was estimated and antipsychotic drug use pattern in the treatment of schizophrenia was determined. Estimated cost of inpatient department Pvt. hospital was found to be Rs. 2,61,720 yearly per patient and in the outpatient department it was found to be Rs. 21,525 yearly per patient. Risperidone, procyclidine, olanzapine, lorazepam and aripiprazole were found to be the most commonly used antipsychotics. And the outcomes of the therapy been given was observed. Most of the patients had improvement in their symptoms with the therapy being given. Patient compliance was most common issue in not taking the medicine. Age related study was also conducted. Schizophrenia is most common in young and middle age. There was no role of pharmacist in both the hospitals in making the therapy cost effective.

I. INTRODUCTION

Schizophrenia is a long-term mental disorder of a type involving a breakdown in the relation between thought, emotion, and behavior, leading to faulty perception, inappropriate actions and feelings, withdrawal from reality and personal relationships into fantasy and delusion, and a sense of mental fragmentation.[1]

Schizophrenia is a profoundly debilitating illness that is correlated with other medical illness and patient mortality, often from suicide.[2] Long-term therapy is required, including repeated efforts by caregivers and family members to reduce the frequency and severity of acute episodes and to reduce the devastating psychological, behavioral, and health effects of schizophrenia, including mortality. The long-term treatment of schizophrenia usually involves continuous specialty mental health care, including maintenance therapy with antipsychotic agents. Intensive family management and social, vocational, and cognitive rehabilitation are also required.[3]

By using precise methods in its diagnosis and a large, representative population, schizophrenia seems to occur with

relative consistency over time during the last half-century. Schizophrenia affects around 0.3–0.7% of people at some point in their life, or 24 million people worldwide as of 2011 (about one of every 285). It causes approximately 1% of worldwide disability-adjusted life years (DALYs). [4]The rate of schizophrenia varies up to threefold depending on how it is defined. Each year, one in 10,000 people age 12 to 60 develops schizophrenia. It is diagnosed 1.4 times more frequently in males than females and typically appears earlier in men, the peak ages of onset are 20–28 years for males and 26–32 years for females. Onset in childhood is much rarer, as is onset in middle- or old age.[5]

According to WHO, Drug utilization study is defined as a study of marketing, distribution, prescription and uses of drugs in a society highlighting on the resulting medical, social and economic consequences. Drug utilization research affords a baseline reference points about the effect of diverse interventions in prescribing the concerned drugs. Antipsychotics are a class of agents which are able to reduce psychotic symptoms in a wide range of conditions like schizophrenia, bipolar disorder, psychotic depression, senile psychosis, various organic psychosis and drug induced psychosis [6]. Antipsychotic prescription patterns are fundamentally different across countries and even regions due to variations in factors including health care policies, availability and cost of drugs, psychiatric training and preferred treatment modalities [7]. Psychotic disorders have different etiologies, each of which demands a unique treatment approach. Schizophrenia has a worldwide prevalence of 1% and is considered the prototypic disorder for understanding the phenomenology of psychosis and the impact of antipsychotic treatment, but patients with schizophrenia exhibit features that extend beyond those seen in other psychotic illnesses.

Poly pharmacy involves the concomitant administration of two or more drugs. Despite extensive research and recommendations as to the optimal prescription of antipsychotics, poly pharmacy and excessive dosing are still widely prevalent in clinical practice in Canada, East Asia and the USA . Poly pharmacy is strongly associated with excessive dosing. [8]

The high costs of second-generation (atypical) antipsychotic drugs, with \$7.5 billion sales in the USA in 2003, has led to a continuing debate about their benefits compared with first-generation compounds. Limitations of previous review were that they analyzed only one global efficacy outcome, even though the main advantage of second generation antipsychotic drugs is claimed to be their broad efficacy spectrum.[9] In particular, these drugs are thought to improve negative symptoms, depression, and quality of life more than do conventional antipsychotic drugs. Improved efficacy for these

problems is thought to be a major characteristic of the a typicality of second-generation antipsychotic drugs, in addition to a reduction in extra pyramidal side-effects. [10]

The chronic course and debilitating effects of schizophrenia combine to create a disease which imposes very considerable clinical, social and economic consequences on societies throughout the world, resulting in it being a leading contributor to global and regional levels of disability and the overall disease burden.[11]The accumulated effectiveness and cost-effectiveness evidence regarding treatment responses to the burden of schizophrenia provides encouraging but hardly remarkable indications. Two Cochrane systematic reviews have clearly shown the superiority but limited acceptability of older antipsychotic drugs such as chlorpromazine or haloperidol over placebo[12], while the arrival of newer, “atypical” antipsychotic drugs has made available to patients and clinicians a set of pharmacological treatment options that are as effective and somewhat more tolerable than conventional neuroleptic drugs. There are also positive findings for the cost-effectiveness of family interventions to reduce the impact of family stress and of a short psycho-educational program to improve patient adherence to medication.

In the regional analysis, the estimated treatment cost per capita for community-based provision of older antipsychotic drugs was I\$ 0.74 (WHO African sub region D), I\$ 2.10 (WHO South-East Asia sub region B) and I\$ 3.13 (WHO Region of the Americas sub region B), equivalent to I\$ 306, I\$ 617 and I\$ 980 per treated case, respectively; country contextualization results produced lower figures of I\$ 1.52 (Chile), I\$ 0.39 (Nigeria) and I\$ 0.57 (Sri Lanka). Interventions making use of newer (atypical) antipsychotic drugs (clozapine in Chile, risperidone in Nigeria and Sri Lanka), which in the regional analysis were estimated to be two to four times more costly than older drugs (I\$ 3–6 per capita), were found to be lower than regional values in Chile and Sri Lanka (less than I\$ 3 per capita), but very much higher than predicted in Nigeria (more than I\$ 10 per capita)[13].

The chronic nature of schizophrenia is a major contributor to overall costs of treatment, which are \$33 to \$65 billion a year in the United States alone. Current estimates of total direct costs per patient vary widely, from \$3700 to \$57,000 per year depending on insurance status, medications available, data source used, and co morbidities. The total direct cost of treating SCZ in the UK is £396 million, or 1.6% of the total health care budget. Hospital-based and community-based residential care accounts for nearly three-quarters of these costs, while drugs account for only 5%. A conservative estimate of the indirect annual costs of lost production is in the region of £1.7 billion. 97% of direct costs are incurred by less than half the patients. Thus, treatments that reduce the dependence and disability of those most severely affected by SCZ are likely to have a large effect on the total cost of the disease to society and may therefore be cost effective. [14]

II. AIMS AND OBJECTIVES

- To study the antipsychotic drug use pattern in OPD and in patients of psychiatry department.
- To study the cost of antipsychotic therapy in schizophrenia.

- To study the outcomes of antipsychotic therapy in schizophrenia.

III. LITERATURE REVIEW

Schizophrenia is a long-term mental disorder of a type involving a breakdown in the relation between thought, emotion, and behavior, leading to faulty perception, inappropriate actions and feelings, withdrawal from reality and personal relationships into fantasy and delusion, and a sense of mental fragmentation [15]

Schizophrenia is a debilitating mental illness that affects 1 percent of the population in all cultures. It affects equal numbers of men and women, but the onset is often later in women than in men. Schizophrenia is characterized by positive and negative symptoms. Positive symptoms include hallucinations, voices that converse with or about the patient, and delusions that are often paranoid. Negative symptoms include flattened affect, loss of a sense of pleasure, loss of will or drive, and social withdrawal. Both types of symptoms affect patient’s families. Psychosocial and family interventions can improve outcomes. Medications can control symptoms, but virtually all antipsychotics have neurologic or physical side effects (e.g., weight gain, hypercholesterolemia, diabetes). There is a 10 percent lifetime risk of suicide in patients with schizophrenia. Schizophrenia is a devastating mental illness that impairs mental and social functioning and often leads to the development of co morbid disease. Family physicians can play an important role in the effective treatment of schizophrenia; they are in a position to recognize the early signs of illness, make referrals to appropriate mental health professionals, help patients and their families cope with the devastating effects of schizophrenia, and encourage a multidisciplinary approach to address all dimensions of the illness [16]

The clinical guidelines “for the treatment of people beginning in the first episode of schizophrenia,” published in 2009, aim to support patients with schizophrenia so that they may live independently, establish and pursue occupational goals, increase social interaction, and achieve a reasonable quality of life. It is essential to have a comprehensive treatment plan, which includes psychosocial and pharmacological dimensions and assures the continuation of these two dimensions throughout the treatment process. It is therefore recommended that the psychosocial interventions include adherence support, art therapy, cognitive-behavioral therapy (CBT), cognitive rehabilitation, counseling and therapeutic support, family interventions, psychodynamic and psychoanalytic therapy, psycho education, and social skills training, and that, in line with the new community model for mental health, these interventions be carried out within the community [17]

Effective pharmacologic treatment of schizophrenia has been available since the 1950s. In the early 1950s, the term “neuroleptic” was introduced to denote the effects of chlorpromazine and reserpine on laboratory animals. It was intended to distinguish their effects from those of sedatives and other central nervous system depressants. Although “neuroleptic” is still used synonymously with “antipsychotic,” the term now usually refers to first-generation antipsychotics that confer an increased risk of extra pyramidal side effects, such as dystonic

reactions (e.g., fixed upper gaze, neck twisting, facial muscle spasms), parkinsonian symptoms (e.g., rigidity, bradykinesia, shuffling gait, tremor), and akathisia (e.g., inability to sit still, restlessness, tapping of feet). Tardive dyskinesia, which is a chronic disorder of the nervous system characterized by involuntary jerking movements (primarily of the face, tongue, and jaw), often is considered an extra pyramidal side effect. However, it is actually a separate and mechanistically different phenomenon. The term “atypical antipsychotic” refers to newer antipsychotics that confer less risk of extra pyramidal side effects than traditional antipsychotics. [18]

Antipsychotic medications have evolved in order to achieve a better control of schizophrenia. Long-acting injectable antipsychotic drugs (LAIs), introduced for the first time in the 1960's, demonstrated their benefits by lowering relapse rates and durations of hospitalization, although the high prevalence and severity of extrapyramidal symptoms (EPS) made it necessary to develop new treatments. Second-generation antipsychotics (SGAs) provided a better tolerability profile compared to the first-generation antipsychotics (FGAs), but a high nonadherence rate is still observed. The recently released LAI SGAs provide the same favorable profile of oral SGAs, with an increased likelihood of improving antipsychotic treatment adherence. Additionally, demographic features such as age, gender, ethnicity, educational background, insurance coverage, polypharmacy, and history of substance abuse should also be taken into account when considering treatment with LAIs. [19]

Schizophrenia is one of the most expensive mental disorders in terms of direct treatment costs, loss of productivity, and expenditures for public assistance. The annual cost of schizophrenia is estimated to be US \$33-65 billion. Unfortunately, even perfectly designed antipsychotic treatment regimens may fail due to non adherence. Over the past several decades, the literature has increasingly recognized nonadherence as a contributing factor in the failure of prescribed antipsychotic regimens. Medication underuse is the most common problem associated with non adherence in patients with schizophrenia. Deviation from antipsychotic maintenance treatment produces clinical and economic burdens such as psychotic relapse, increased clinical visits, emergency room visits, and hospitalization. The reported rates of non adherence to antipsychotic medication vary greatly. Depending on the study design, measurement method, and other factors, reported rates of non adherence to antipsychotic medication range from 11% to 80% with an average rate of approximately 50%. Adherence appears to remain a problem despite the use of atypical antipsychotics. [20]

Cost-of-illness studies have estimated that approximately 1.5 percent to 3 percent of national health expenditures in developed countries and 22 percent of the costs of mental illness are related to schizophrenia. The National Institute of Mental Health has estimated that schizophrenia costs the United States about \$32.5 billion each year for about 2 million patients with the diagnosis. For comparison, the estimated cost of depression is about \$30 billion each year for about 19 million patients with that diagnosis. The majority of direct health costs related to schizophrenia are attributable to hospitalizations for both initial episodes and later relapses. At least half of the relapses can be

associated with a lack of compliance with drug therapy, with the remainder linked to issues of treatment efficacy. [21]

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IV. STUDY DESIGN

TYPE OF STUDY:

A retrospective as well as prospective study was conducted on a randomly selected patients of schizophrenia in various hospitals of Lahore.

STUDY PLACE:

- Punjab institute of mental health.
- Fountain house

SAMPLE SIZE:

- 50 patients (randomly selected).

DURATION OF STUDY:

- One month

INCLUSION/EXCLUSION CRITERIA:

- Outdoor and hospitalized patients of schizophrenia were included.
- Males and females both were included.
- Paeds and geriatrics were excluded.
- Patients with other psychiatry disorders were excluded.

METHODOLOGY:

Topic "COST OF TREATMENT AND ANTIPSYCHOTIC DRUG USE PATTERN IN SCHIZOPHRENIA" was assigned and project was done by selecting 50 schizophrenic patients from the wards and OPD's of psychiatry department of various hospitals in Lahore. A data collection form was designed which comprised of the questions regarding the demographic data, history of the patients, the treatment being given and various questions related to the cost of treating schizophrenia. Data collection forms were filled by the patients by face to face interview and by following their medical records. Results were calculated and presented in the form of tables and graphs.

V. RESULTS AND DISCUSSION

Demographic data of patients showed that age played a very important role in the induction of schizophrenia. 90% of the patients were between 15 and 40 years of which 71% patients were between 15 and 30 years. Almost 76% of the patients belonged to middle class families, 20% from lower class and only 4% of the patients belonged to upper class families. There were various factors that contributed in the onset of schizophrenia. One of the main factors was the family history or patient's own history of addiction. Almost 26% of the patients suffering with schizophrenia were those who had the history of addiction. Therapy being given for the treatment of schizophrenia included antipsychotic therapy along with psychotherapy or counseling sessions with psychologists. People also tried other treatments for the cure of schizophrenia which included homeopathy, peers, and others include hakeems. 6% patients tried homeopathic treatment, 14% patients tried peers and 2% patients tried hakeems. 38% People also discontinued therapy due to many reasons. 2%, 4%, 26% and 6% patients discontinued the therapy because of cost, effectiveness, patient's compliance and other reasons respectively. Other reasons included that the symptoms were cured. Patient's compliance was the most common reason for the discontinuation of therapy because of prolonged therapy. Relapse was also observed in 24% of the patients. In 75% pt's relapse occurred because of not taking medicine and in 25% pt's relapse occurred because of some bad incident that occurred in their life. 90% of the patients had to visit the doctor twice a month which increased the cost of the treatment and decreased the patient's compliance. Cost of treatment included both direct and indirect cost. Indirect cost was mostly associated with the transportation and hospital admission. In PIMH the treatment of schizophrenia was almost free both for outpatients and inpatients. All the expenditures were paid by the government. Medicines were given free of cost from the hospital pharmacy and there was no fee for consulting doctor. Only the indirect cost was associated for the treatment in PIMH. Total estimated cost per annum of Pvt. patients in the private ward of fountain house was found to be Rs. 261,720 which was almost the double of the cost of treatment in general ward of the hospital. The cost of treatment in general ward and outpatient department of fountain house was estimated to be Rs. 133,240 and Rs. 21,525 per annum respectively. However the cost associated with medicines in private ward, general ward and OPD of fountain house was only 1.85%, 3.49% and 21.74% respectively of the total cost. Rest of the cost was related with the hospital admission, doctor's fee, transportation and food

provided by the hospital administration. Daily charges of Pvt. ward of fountain house was Rs. 750 and that of general ward was Rs. 350. There were also such patients who could not afford the therapy. Social welfare department of the hospital helped them by giving the medicines free of cost.

Typical as well as atypical antipsychotics were being prescribed for the treatment of schizophrenia. Atypical antipsychotics including risperidone, quetiapine, olanzapine and clozapine were used. Typical antipsychotics including haloperidol, flufenazine, aripiprazole were used. Risperidone was prescribed to 66% pt's, procyclidine to 54%, clonazepam to 18%, olanzapine to 36%, flufenazine to 22%, lorazepam to 28%, quetiapine to 14%, haloperidol to 14%, aripiprazole to 24%, lamotrigine to 10%, valproate Na to 8%, bromazepam to 6%, nortryptalline to 2% and valproic acid to 8% of the patients. There was no role of pharmacist in either of the hospitals in making the treatment cost effective.

VI. CONCLUSION & RECOMMENDATIONS

It was a face to face as well as medical record survey of the patients of schizophrenia in Punjab institute of mental health and Fountain House. After the compilation of results it is concluded that schizophrenia is likely to occur in young and middle aged people. Though the government is playing a very vital role by offering free treatment yet cost of the private hospital is far too expensive. Both typical and atypical antipsychotics are being prescribed for the treatment of schizophrenia. Most of the cost is related to hospital admission, doctor's fee and transportation. Interruption in the therapy causes relapse and increase the cost of treatment.

A significant therapeutic need appears to exist for new antipsychotic therapies to treat patients with schizophrenia because prolonged therapy reduces patient's compliance and increase the cost of treatment. Pharmacists should play their role in making the therapy cost effective.

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