Original Research Article

Antidepressant Prescribing Practice in a Psychiatric Outpatient Hospital: A Drug Utilization Evaluation

ABSTRACT

Background: One of the main causes of morbidity is psychiatric disorders, which are becoming a burden to public health. The therapeutic choices are influenced by several factors, including treatment paradigms, safety, and costs that determine outcomes.
Aim: We carried out the drug utilization evaluation (DUE) of antidepressants in patients visiting the psychiatry outpatient department.
Study design: An observational, prospective, and cross-sectional study.
Place and Duration of Study: Department of Psychiatry, Jaya Krishna Hospital, Hanamkonda, TS, between September 2021 to April 2022
Methodology: We included patients who visited the psychiatric outpatient hospital, were clinically diagnosed, and received any antidepressant for the long term. The relevant data collected from the information resources was systematically analyzed for DUE.
Results: Among 417 patients, the majority were in the age group of 31-40 (33.3%) years, and the most affected were female (57.3%), married (73.4%), and housewives (29.5%). Depression (37.6%) was the most commonly diagnosed psychiatric disorder. Of these prescriptions, 5.3% were monotherapy, the remaining was polytherapy (94.7%), and the majority of them had three drugs (36.2%). The average number of drugs per encounter was 3.4, drugs prescribed by generic names were 41.4%, injectable drugs prescribed were 2.6%, and drugs listed in the EML were 61.3%. Of all, 88.7% of prescriptions had at least one antidepressant, predominantly SSRIs, and fluoxetine (23.0%) was the most commonly prescribed. Benzodiazepines (59.7%) were the most frequently prescribed concomitant drug class and clonazepam (50.6%) was the most widely prescribed. Suicidal thoughts (5.8%) were the most commonly observed ADR.
Conclusion: The study observed a pattern of polytherapy, mainly antidepressants from the SSRIs, notably fluoxetine mostly prescribed, and suicidal thoughts were the frequent ADR. Drug use surveillance studies, rationalizing therapeutic choices, and proper patient counseling would improve therapeutic outcomes by minimizing side effects and ADRs.

***Keywords**: Antidepressants, Adverse drug reaction, Depression, Drug utilization, Fluoxetine, Psychiatry*

1. INTRODUCTION

Psychiatric disorders are common among various age groups irrespective of gender, education, socioeconomic background, and geographical region and highly affect individuals at any phase of life [1]. The consequences of these mental illnesses include personal and family suffering, diminished daily routine, and increased financial burden on family and society [2]. Psychiatric disorders, particularly depression, anxiety disorders, and

schizophrenia are the most prevalent, affecting 14.3% of the global population during their lives [1,3] It is estimated that 4.5% (56 million) and 3.5% (38 million) of Indians suffer from depression and anxiety disorders, respectively [3]. In addition, 10–15% of patients with severe depression attempt suicide and more than 60% of depressive patients do not seek medical advice because of the stigma attached to mental health disorders and their negative impact on their personal and professional lives [4]. India with a large young and elderly population and diverse demographics challenges a significant public mental health burden that warrants urgent attention. Therefore, depression symptoms must be identified and promptly addressed with available pharmacotherapies considering their safety and efficacy suitable for long-term use.

Various factors influence both the initial and subsequent choices of pharmacotherapy in psychiatric disorders, including the possibility and nature of side effects and drug-drug interactions, especially for adolescents, the elderly, and pregnant or breastfeeding women [5,6]. In clinical practice, antidepressants, such as tricyclic antidepressants (TCAs), monoamine oxidase inhibitors (MAOIs), selective serotonin reuptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs) are indicated for the management of depression, general anxiety disorder, social anxiety, and somatization disorders [4,6-8]. Moreover, monotherapy is recommended as the first-line initial treatment owing to enhanced patient compliance, reduced drug interactions, and adverse drug reactions (ADRs). However, a combination of antidepressants could also be considered if the initial monotherapy fails in the long-term management [9]. Additionally, drug switch and replacement are also commonly practiced to improve therapeutic benefits and minimize unwanted effects [10]. Over the years antidepressant prescribing patterns have undergone a revolution with the rational prescribing practice being implemented globally, resulting in conventional drugs like TCAs and MAOIs being gradually replaced by SSRIs, SNRIs, and novel antidepressants [2,10]. Paramount to surveillance of drug use patterns, appropriateness and prescribing patterns must be evaluated periodically to increase therapeutic safety and efficacy, improve medication adherence, and provide feedback to prescribers [5,11,12].

Drug use evaluation (DUE) plays an important role in rationalizing the therapy. The only purpose of DUE is to ensure that the drugs are utilized effectively with their correct and safe usage in the best patient healthcare [12-14]. Indeed, DUE evaluates drug use based on gender, age, comorbidity, education, geography, and social class, among other characteristics [6,7,15]. In addition, surveillance on the use of antidepressants for their long-term efficacy and safety is of greatest significance to examine real-world prescribing trends in psychiatric disorders. Furthermore, DUE outcome helps clinical audits, rationalizes therapeutic choices, allows personalized treatment courses, updates clinical practice guidelines, and improves cost-effective patient care and the healthcare system [16,17]. Therefore, a DUE was done to assess the prescribing pattern of antidepressants and the prevalence, rationality, and safety of antidepressant use across all psychiatric disorders.

2. METHODOLOGY

An observational and cross-sectional study was conducted to examine the utilization pattern of antidepressants in patients visiting the outpatient department of psychiatry at Jaya Krishna Psychiatry Care & Counselling Center, Hanamkonda, Telangana, for eight months from September 2021 to April 2022. Patients up to 80 years of age who were stable, cooperative, communicable, diagnosed with any clinical condition as per the DSM-5 criteria, and prescribed antidepressants were included after explaining the details of the study. Patients with improper diagnoses, who were unwilling to share the information, and visited for a second opinion were excluded. The relevant data was collected from patients, their

case sheets, prescriptions, and direct communication with family members during patient counseling. Patient demographic data, medical history, diagnosis and duration, family history, general prescription pattern of drugs (number of medications including antidepressants, psychotropic drugs, and concomitant drugs per prescription) and antidepressants, the WHO core prescribing indicators, side effects, and ADRs using the Antidepressant Side Effect Checklist (ASEC) [15], and antidepressant choices for psychiatric disorders were obtained, and recorded electronically. Descriptive statistics were applied for analyzing the data and are expressed as numbers, averages, frequencies, and percentages.

3. RESULTS

3.1. Socio-demographic characteristics of the study population

A total of 417 patients were included in the present study who were diagnosed with various psychiatric disorders. The most commonly affected patients with psychiatric disorders were in the age group 31-40 years (n=139; 33.3%) followed by the age group 21-30 years (n=111; 26.6%), and the least affected were in the age group of >70 years (n=5; 1.2%). Based on gender, most patients were females (n=239; 57.3%) than males (n=178; 42.7%). Comparing the educational background of the patients, uneducated (n=211; 50.6%) and educated (n=206; 49.4%) were almost equally affected and the majority were from rural areas (n=219; 52.5%) than urban areas (n=198; 47.5%). Notably, the majority of the patients were married (73.4%) followed by unmarried (20.9%) while based on occupational status, most of them were housewives (n=123; 29.5%) followed by agriculture (n=84; 20.1%), and the least affected were unemployed (Table 1).

3.2. Diagnosis profile of the study population

Among 417 patients, most were diagnosed with depression (n=157; 37.6%), followed by GAD (n=70; 16.8%), and panic disorder (n=45; 10.8%) whereas the least diagnosed psychiatric disorder was bereavement disorder (n=1; 0.2%) (Table 2). Among the female patients, the three most commonly diagnosed psychiatric disorders were depression (n=90; 21.6%), GAD (n=52; 12.5%), and OCD (n=24; 5.8%) whereas in males, depression (n=69; 16.5%), panic disorder (29; 7.0%), and GAD (n=18; 4.3%) were the three widely diagnosed (Data not shown).

3.3. General prescription pattern of drugs in the study population

Out of 417 patients, polytherapy was 94.7% and 151 encounters had three drugs that were most frequently prescribed (36.2%) followed by four (n=111; 26.6%), and two (n=61; 14.6%) drugs. Further, monotherapy was seen in only 22 patients (5.3%), on the other hand, four patients were prescribed eight, the highest number of drugs, though these were the least (1.0%) among all (Table 3).

3.4. Prescribing pattern of drugs based on the WHO prescribing indicators

A total of 1438 drug regimens were prescribed in the 417 prescriptions with an average number of drugs per encounter was 3.4. None of the patients were prescribed antibiotics and 2.6% of prescriptions (n=11) had injectable drugs. Of all the drugs, 41.1% were prescribed by their generic name (n=595) and 61.3% of prescribed drugs (n=881) were from the National List of Essential Medicines (NLEM), 2022 (Table 4).

Table 1. Sociodemographic characteristics of the study population

Age (Years)	No. of patients (N = 417)	Percent (%)
<20	25	6.0

21-30	111	26.6
31-40	139	33.3
41-50	80	19.2
51-60	38	9.1
61-70	19	4.6
71-80	5	1.2
Gender		
Female	239	57.3
Male	178	42.7
Educational status		
Educated	206	49.4
Uneducated	211	50.6
Residence		
Urban	198	47.5
Rural	219	52.5
Marital status		
Married	306	73.4
Unmarried	87	20.9
Divorce	18	4.3
Widow	6	1.4
Occupation		
Housewife	123	29.5
Agriculture	84	20.1
Daily labour	56	13.4
Student	53	12.7
Business	30	7.2
Unemployed	26	6.2
Others	45	10.8

3.5 Prescription pattern of antidepressants in the study population

Of 417 patients with psychiatric disorders, 88.7% of patients (n=370) were prescribed at least one depressant. Among all patients, SSRIs were the most widely (n=254; 60.9%) prescribed. The three most frequently prescribed SSRIs were fluoxetine 23.0% (n=96) followed by escitalopram 22.3% (n=93), and paroxetine 13.9% (n=58) on the other hand, doxepin, melitracen, and clomipramine (n=1; 0.23% each) were the least commonly prescribed antidepressants (Table 5).

3.6. Prescription pattern of concomitant drugs along with antidepressants in the study population

Among 417 patients, the three most commonly prescribed concomitant drugs along with antidepressants were clonazepam (n=211; 50.6%), zolpidem (n=31; 7.4%), and risperidone (n=23; 5.5%). Furthermore, the three most commonly prescribed concomitant drug classes along with antidepressants were benzodiazepines (n=249; 59.7%), antipsychotic agents (n=70; 16.8%), and non-steroidal anti-inflammatory drugs (NSAIDs) (n=36; 8.6%) of which clonazepam (50.6%), risperidone (5.5%), and equally naproxen and etoricoxib (4.1% each) were the most frequently prescribed, respectively (Table 6).

Table 2. Diagnosis profile of the study population

Diagnosis	No. of patients (N = 417)	Percent (%)

Depression	157	37.6
GAD	70	16.8
Panic disorder	45	10.8
OCD	39	9.4
Bipolar	25	6.0
Somatization	25	6.0
Schizophrenia	16	3.8
Anxiety	14	3.4
Conversion disorder	8	1.9
Personality disorder	8	1.9
ADS	6	1.4
Delusional disorder	3	0.7
Bereavement disorder	1	0.2

GAD - Generalized Anxiety Disorder,
OCD - Obsessive-Compulsive Disorder,
ADS - Alcohol Dependence Syndrome

Table 3. General prescription pattern of drugs in the study population

Number of drugs per prescription	No. of patients (N = 417)	Percent (%)
Monotherapy		
One	22	5.3
Polytherapy	395	94.7
Two	61	14.6
Three	151	36.2
Four	111	26.6
Five	48	11.5
Six	15	3.6
Seven	5	1.2
Eight	4	1.0

3.7. Adverse drug reactions reported after long-term antidepressant use in the study population

During follow-up once or twice a month to receive a new prescription, patients were enquired about ADR experiences. Of 417 patients, 26.6% of patients (n=111), who consumed antidepressants showed ADRs and the remaining 306 patients did not experience any adverse effects. In this study, the three most frequently reported ADRs after antidepressant use were suicidal thoughts (n=24; 5.8%), insomnia (n=16; 3.8%), and drowsiness (n=14; 3.4%) (Table 7).

Table 4. Prescribing pattern of drugs based on the WHO prescribing indicators

WHO prescribing indicator	Number	WHO standard
Average number of drugs per encounter	3.4	1.6 – 1.8
Percentage of encounters with an antibiotic prescribed	Nil	20.0 – 26.8
Percentage of drugs prescribed by generic name	41.4	100

Percentage of encounters with parenteral drug prescribed	2.6	13.4 – 24.1
Percentage of drugs prescribed from NLEM	61.3	100

National List of Essential Medicines (NLEM), 2022

Table 5. Prescription pattern of antidepressants in the study population

Antidepressants	No. of patients (%)
Fluoxetine	96 (23.0)
Escitalopram	93 (22.3)
Paroxetine	58 (13.9)
Mirtazapine	41 (9.8)
Desvenlafaxine	29 (7.0)
Bupropion	14 (3.4)
Duloxetine	13 (3.1)
Sertraline	7 (1.7)
Amitriptyline	7 (1.7)
Venlafaxine	4 (1.0)
Nortriptyline	3 (0.7)
Vilazodone	2 (0.5)
Doxepin	1 (0.2)
Melitracen	1 (0.2)
Clomipramine	1 (0.2)

4. DISCUSSION

A total of 417 patients were included in our study, and most of the patients diagnosed with psychiatric disorders were seen between the ages 21 and 40 years, the majority of them in the age group 31 – 40 years which is similar to a previous study [1,2,7]. This is possible as these age groups may be burdened with many responsibilities, such as starting an early career, facing challenges in employment and midlife, and coming across turbulences and tribulations due to pressures and stress. It is also observed that most of the diagnosed patients were females than males and most were housewives. Besides, most of the patients were married. This gender-related difference could be due to the prevalence of illness in women where they tend to report their symptoms of psychiatric disorders compared to male patients [18-20]. It has been previously reported that women appear to be sensitive to developing depression at even minor stress and show disturbed neuroendocrine responses to such stress [4,21]. Moreover, women are at risk of developing depression owing to constant stress, lack of family support, discrimination, and hormonal imbalance at different stages [19]. Further, the study indicated that educational status and area of residence did not contribute to psychiatric disorders remarkably. Considering all the socio-demographic factors, this study showed that few of these factors can be related to the causality of the disease. It is noteworthy that distress tolerance and the mindset of a person to withstand negative or uncomfortable emotional states are major determinants, which are genetically determined.

Table 6. Prescription pattern of concomitant drugs along with antidepressants in the study population

Class of drugs	No. of patients (%)
Benzodiazepines	**249 (59.7)**
Clonazepam	211 (50.6)
Lorazepam	14 (3.4)

Alprazolam	10 (2.4)
Tofisopam	10 (2.4)
Etizolam	3 (0.7)
Nitrazepam	1 (0.2)
Antipsychotics	**70 (16.8)**
Risperidone	23 (5.5)
Olanzapine	17 (4.1)
Clozapine	12 (2.9)
Quetiapine	7 (1.7)
Lurasidone	4 (0.0)
Ziprasidone	3 (0.7)
Amisulpride	2 (0.5)
Haloperidol	1 (0.2)
Lithium	1 (0.2)
Antiepileptic	**30 (7.2)**
Pregabalin	14 (3.4)
Valproic acid	11 (2.6)
Divalproex	3 (0.7)
Chlordiazepoxide	2 (0.5)
Anxiolytic	**1 (0.2)**
Buspirone	1 (0.2)
Antiparkinson's	**16 (3.8)**
Trihexyphenidyl	16 (3.8)
Sedative & Hypnotics	**31 (7.4)**
Zolpidem	31 (7.4)
Antihypertensives	**29 (7.0)**
Propranolol	14 (3.4)
Metoprolol	10 (2.4)
Telmisartan	5 (1.2)
NSAIDs	**36 (8.6)**
Naproxen	17 (4.1)
Etoricoxib	17 (4.1)
Diclofenac	1 (0.2)
Aceclofenac	1 (0.2)
Analgesic	**19 (4.6)**
Flupiritin+paracetamol	19 (4.6)
Antiplatelet	4 (1.0)
Aspirin	4 (1.0)

In this study, depression, GAD, OCD, and/or panic disorder were the three most commonly seen psychiatric disorders that are similar to previously reported studies [6,14,22,23]. These disorders may be mainly due to childhood trauma, constant stress, family issues, financial problems, genetically related brain defects, and drug or alcohol abuse which are very common in modern-day life [19,24,25]. The frequency and prevalence vary between genders and from study to study, nonetheless, the order of psychiatric disorders did not indicate any particular pattern.

Table 7. Adverse drug reactions reported after antidepressant use in the study population

ADR reported	No. of patients (%)	Antidepressant(s) used
Suicidal thoughts	24 (5.8)	Fluoxetine, escitalopram, paroxetine,

		duloxetine, mirtazapine
Insomnia	16 (3.8)	Fluoxetine, escitalopram, desvenlafaxine, paroxetine
Drowsiness	14 (3.4)	Fluoxetine, mirtazapine, bupropion, fluvoxamine
Dry mouth	12 (2.9)	Amitriptyline, nortriptyline, duloxetine, fluoxetine, clomipramine, dosulepin
Sexual dysfunction	12 (2.9)	Fluoxetine, paroxetine, desvenlafaxine, mirtazapine
Blurred vision	7 (1.7)	Paroxetine
Weight gain	7 (1.7)	Fluoxetine, nortriptyline, paroxetine, amitriptyline, mirtazapine
Yawning	4 (1.0)	Fluoxetine, desvenlafaxine
Dizziness	3 (0.7)	Desvenlafaxine
Involuntary movements	3 (0.7)	Fluoxetine, escitalopram
Excessive sweating	2 (0.5)	Escitalopram
Constipation	2 (0.5)	Duloxetine
Weakness	2 (0.5)	Escitalopram
Indigestion	1 (0.2)	Fluoxetine
Anxiety	1 (0.2)	Fluoxetine
Decreased appetite	1 (0.2)	Duloxetine

It is observed that polytherapy over monotherapy was predominantly common with three drugs per prescription being most frequent and a maximum of eight drugs was also seen as reported in previous studies [14,26-29]. This is further revealed and supported by the WHO core prescribing indicator that the average number of drugs per prescription was 3.4. Moreover, several studies reported dual therapy and triple therapy that were common in the treatment of various psychiatric disorders [4,8,13,30]. Indeed, polytherapy instead of polypharmacy was also common in psychiatric disorders owing to slow response rats for therapeutic benefits, poor response, and/or tolerability considerations that made the psychiatrists follow add-on therapy with other psychotropic medication or antidepressants, such as SNRI, NaSSA, and TCA or switch the antidepressant as commonly practiced in the management of depression [9,13,14,26,30]. This often results in taking multiple medications at different times of the day. Notably, few patients were prescribed injectable drugs that hamper the fact to calm down and sedate a patient who was aggressive and not manageable by counseling alone during the time of visit. Adding to this, most of the drugs were prescribed by their brand names rather than generic names. It is well known that the sales representatives and liaison officers of pharmaceutical companies influence healthcare professionals, promoting the marketing of psychotropics as “magic bullets, rewarding them with incentives, etc. [31]. In addition, negative perceptions of psychiatrists and patients considering generic drugs as less effective and safe than brand versions are further supported by patients' experiences of re-emergence, incidence of new adverse events, and higher rates of psychiatric hospitalization after switching to generic versions [32-34]. These might be the plausible reasons for the prescription of branded drugs in this study. Moreover, most of the prescribed drugs are listed in the NLEM. It is now known that few drugs are not necessarily listed in the NLEM, 2022 but are essentially important in the management of psychiatric disorders with minimal side effects. This is mainly because of their recent approval, add-on benefits, and to overcome and avoid the risks of side effects and ADR associated with past medications [13,14,35,36]. In particular, the WHO Model List of

Essential Medicines (EML) is a standard guide for preparing the NLEM at the national level, specifically in low-income and middle-income countries. Indeed, the EML includes drugs based on strong evidence that promote access to the safe, most effective, and cost-effective drugs for mental disorders [12]. The reason for this difference in the prescription of NLEM-listed drugs is that several countries follow a selection process for the inclusion of a drug depending on its essentiality specific to their geography and prevalence of clinical condition that enables the availability, affordability, and promotes rational use in that country [37].

It is also observed that based on the final diagnosis, most of the patients prescribed at least one depressant and most commonly prescribed antidepressants were from the SSRIs class mainly fluoxetine, escitalopram, paroxetine, and followed by SNRI and NaSSA. These results are in line with previous studies that revealed a high prevalence of antidepressants, particularly SSRIs, use due to their better efficacy, tolerability at therapeutic doses, availability, affordability, and favorable risk-benefit ratio [14,25,38,39]. Drugs, such as bupropion, venlafaxine, and mirtazapine have a faster onset of antidepressant action and whenever such effect is required these medications are generally indicated [5,8,25,30]. Additionally, these antidepressants are prescribed not only for the management of depression but also for other psychiatric disorders viz., GAD, panic disorder, OCD, bipolar disorder, schizophrenia, alcoholic dependence, and others to improve patient symptoms and altered behavior and sleep patterns [14,29,40]. Notwithstanding this, several other factors possibly enable the availability and use of newer and relatively safer drugs, such as SSRIs, and generic versions, as well as experience or fear of withdrawal symptoms associated with past medications, increased duration of treatment that would delay therapeutic benefits, and promotion of awareness and mental health programs might be contributed to increased prescription of psychotropic drugs, including antidepressants [14,24,41,42].

The results of the present study also revealed that to enhance efficacy, augment therapeutic response in a single dose therapy, and decrease side effects, concomitant medications, such as benzodiazepines, antipsychotics, anxiolytics, sedatives and hypnotics, antiepileptics, and other non-antipsychotics drugs, such as NSAIDs, analgesics, antihypertensives were prescribed along with antidepressants. This is supported by the results of polytherapy wherein many drugs are prescribed to manage co-morbidities and complications as reported by several studies [4,9,14,30]. Benzodiazepines were most commonly prescribed along with antidepressants. Of particular note, clonazepam and risperidone have been the preferred benzodiazepine and atypical antipsychotic drugs, respectively, prescribed along with antidepressants due to their potential to increase the therapeutic effects and partially suppress the adverse effects of SSRIs, and not associated with severe side effects of classical antidepressants and antipsychotics [4,9,14,27].

Based on patients' complaints and experiences with taking medications, ADRs were suspected with the most commonly observed being suicidal tendencies, insomnia, drowsiness, dry mouth, and sexual dysfunction which are in complete correlation with ASEC. This might be due to the long-term use of antidepressants, psychotropic drugs, and possibly other concomitant drugs to manage co-morbid conditions that were noticed during the period of treatment [8,9,14]. Suicidal ideation was the most commonly experienced by patients and observed in the study was similar to the previous studies [43,44]. Indeed, suicidal tendencies are the boxed warning of many antidepressants, particularly reported with the use of SSRIs in younger patients less than 25 years old [45]. Furthermore, it is reported that sexual dysfunction associated with antidepressant use may cause negative psychological effects on the patient [46]. Because of experiencing these adverse effects, some of the patients may stop taking medications which worsens the disease condition and leads to medication non-adherence that affects the quality of life of patients and families. Therefore, promoting education, counseling, and awareness of patients along with their family members would

play a crucial role in managing psychiatric disorders, enhancing therapeutic outcomes over risk, and improving patient compliance and medication adherence.

5. CONCLUSION

In this study, the majority of the patients were women, married, occupied as housewives, and diagnosed with depression. Polytherapy, particularly prescribing at least three drugs, of which at least one antidepressant was common, most of the drugs were prescribed by brand names, and were listed in the NLEM. SSRIs, in particular, fluoxetine and benzodiazepines, especially clonazepam, were the frequently prescribed antidepressants and concomitant drugs for various psychiatric disorders, and suicidal thoughts were the most commonly reported ADR after long-term antidepressant use. Thus, patient and family education and counseling on behavioral disorders and psychotropic drugs are essential for therapeutic benefit and help improve patient compliance.

6. LIMITATIONS

The present study has certain limitations. First, the duration of the study was not sufficient to provide direct insight into the changing trends of prescribing antidepressants over time. Second, this study was conducted at one site in one city, therefore, it may not be representative of the antidepressant drug utilization pattern of the region at large. Our analysis was limited to pharmacological therapy only and did not provide an overview of pediatric psychiatric treatment. Third, the study was a cross-sectional study, observations of long-term patterns and safety of antidepressant use were not possible. Fourth, the study did not examine the use of antidepressants in non-psychiatric conditions which may underestimate the overall DUE of antidepressants.

DISCLAIMER

The products used for this research are commonly and predominantly used products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by the personal efforts of the authors.

CONSENT AND ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee of the Department of Pharmacy Practice, Care College of Pharmacy, Hanamkonda (IECHS/CCP/DOPP/09/05), and patient consent was taken to collect the data.

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