

Prospective study to evaluate the efficacy of fluoxetine in comparison with amitriptyline in patients with depression

Vasanth Sandanapitchai^{1*}, Sarojini Ramasamy², Elavarasi Pichai¹

¹Department of Pharmacology, Government Thiruvarur Medical College, Tamil Nadu, India

²Institute of Pharmacology, Madurai Medical College, Madurai, Tamil Nadu, India

Received: 31 August 2016

Accepted: 03 October 2016

***Correspondence to:**

Dr. Vasanth Sandanapitchai,
Email: 89vasanth@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Mental disorders are common in medical practice and may present either as a primary disorder or as a comorbid condition. They are a group of disorders characterized by altered regulation of mood, behavior and affect. Depressive disorder ranks top among the mental disorders. Depression is a disorder of public health importance, in terms of its prevalence, morbidity, mortality and economic burden.

Methods: Study was carried out in the outpatient department of psychiatry, Government Rajaji Hospital, Madurai, after obtaining clearance from Institutional ethical committee, written informed consent was obtained from all the patients. Eighty newly diagnosed patients suffering from depression, attending psychiatric outpatient department were selected after satisfying inclusion and exclusion criteria. They were divided into two groups with 40 patients in each group. Group I received amitriptyline (25- 150 mg /day) and group II received fluoxetine (20- 40 mg /day). Efficacy was assessed by measuring the reductions in the total HAM D-Scores (Hamilton depression rating scale) at the end of the study from baseline scores.

Results: The efficacy of two antidepressants was compared and it was found that the incidence of depression was higher among the 20 – 40 years age groups in both the study groups. Females were more in number as compared to males in both the study groups. The efficacy of fluoxetine is comparable to that of Amitriptyline both were equally efficacious in the treatment of depression.

Conclusions: Depression is a disorder of major public health importance, in terms of its prevalence, morbidity, mortality and economic burden. The prevalence of depression is more in women than men. Fluoxetine and amitriptyline were equally efficacious in the treatment of depression.

Keywords: Amitriptyline, Depression, Efficacy, Fluoxetine, Response rate

INTRODUCTION

Medicine has witnessed the presence of depression among humans from very long time and there is a rapid increase in the depressive disorders among humans. Depression presents with depressed mood, lack of interest, loss of pleasure, feeling guilt, low self-worth, sleep disturbances, loss of appetite, low energy and poor concentration.

The primary diagnosis of depression was found in 50 % of patients who have committed suicide. In India 120,000 people commit suicide every year. Indian union health ministry has estimated that 37.8 % were below the age group of 30 years.¹

The signs and symptoms of depression can be easily identified. The early identification and treatment helps to reduce the mortality and morbidity, due to the advent of newer pharmacotherapeutic agents and better understanding of the of the pathophysiology of depression there is a step forward in the management of depression. It is possible to treat the depressed patient in primary care level and the trend has turned from custodial care towards restoring the individual patient to his place in community.²

There are many classes of antidepressants and the list is growing with the advent of many newer anti-depressants, tricyclic anti-depressants (TCA) were initially used to treat depression. Amitriptyline is an effective anti-depressant belonging to a tricyclic antidepressant group.

SSRI is the currently preferred first line anti-depressant of choice in unipolar depression.³

Fluoxetine is a selective serotonin reuptake inhibitor, which is introduced first in this class. It is a long acting drug and it is approved for use in children seven years and above and elders for depression. Data on the response to drug therapy for antidepressants among the South Indian population is unavailable in detail. We planned to study the efficacy of tricyclic antidepressants and selective serotonin reuptake inhibitors in patients with depression in a psychiatric outpatient department in a government tertiary care hospital using amitriptyline and fluoxetine as the candidate drug. Amitriptyline and fluoxetine was most commonly used in the psychiatric outpatient department for treating depression so they were selected to be the candidate drug.

The aim and objective of the study was to compare the efficacy of amitriptyline and fluoxetine in patient with depression.

METHODS

Study was carried out in the outpatient department of psychiatry, Government Rajaji Hospital, Madurai, after obtaining clearance from Institutional ethical committee. Study was designed as a Single center, Open labelled, Prospective, Observational study with a sample size of eighty patients. Written informed consent was obtained from all the patients. Newly diagnosed cases of depression (moderate to severe according to ICD 10 criteria) were included for the study. Patients of both sex were included and the age group selected was between 19 years to 60 years. Patients not willing to participate in the study were excluded Pregnant and breastfeeding women

were excluded. Patients with diabetes mellitus, hypothyroidism, and obesity were excluded. Patients with Cardiac, hepatic disease, acute or chronic renal disease were excluded from the study Patient with tuberculosis, HIV/AIDS, leprosy were excluded from the study

Eighty Cases were selected over a period of one year. They were divided into two groups and group I was given amitriptyline and group II was given fluoxetine. Patients were given treatment for a period of 8 weeks and they were followed were once in two weeks. Complete blood count, Liver function test, renal function test, Thyroid profile, blood glucose and serum cholesterol were estimated at baseline and at the end of study for all the patients. Clinical assessment for Efficacy of both antidepressants was done at the beginning of the study and on 2nd, 4th, 6th, 8th weeks. To measure Efficacy, the 17- point HAM-D (Hamilton Depression) rating scale was used; Efficacy was assessed by measuring the reductions in the total HAM D-Scores at the end of the study from baseline scores. Data analysed using student's t test for normally distributed data.

RESULTS

Totally eighty patients were recruited after satisfying the inclusion and exclusion criteria. All the patients completed the 8 weeks trial and there was no drop out in the study, all the 80 patients were analysed for the response to the drug therapy. Among eighty patients analysed 46% were males and rest were females (54%), the age distribution was 37% were in the age group of 20-29 years, 27% in 30-39 years, 22% belonged to 40-49 years while 14 % belonged to 50-59 years. The majority of patient belonged to 20- 39 years of age (64%).

Table 1: Comparison of efficacy between two groups.

Group	HDRS baseline (Mean ± S.D)	HDRS 8 week (Mean ± S.D)	Mean reduction (Mean ± S.D)	Efficacy rate (%)
Amitriptyline	30.35±3.38	24.57±3.36	5.78 ±1.42	80.95
Fluoxetine	30.22±3.17	24.60±2.90	5.26 ±1.33	81.40

In amitriptyline group, the mean HDRS score at baseline was 30.35±3.38 and at the end of 8 weeks was 24.57±3.36. The mean reduction of HDRS score for the amitriptyline group was 5.78±1.42.the efficacy rate was 80.95%. While in fluoxetine group, the mean HDRS score at base line was 30.22±3.17 and the mean HDRS score at the end of 8 weeks trial was 24.60±2.9 and the mean reduction in HDRS for fluoxetine group was 5.26±1.33. The efficacy rate for fluoxetine group was 81.40% (Table 1).

The efficacy of two antidepressants was compared using students t test and the results were not statistically significant ($p>0.05$) imparting that there was no difference between the two groups in reduction of mean HDRS score from end of the study to the baseline score in the treatment of depression (Figure 1).

In Amitriptyline group, the mean HDRS score at baseline was 30.35±3.38. 50% reduction in HDRS score was observed at a mean duration of 4.08 weeks with a standard deviation of ±0.76. In fluoxetine group, the mean HDRS score at baseline was 30.22±3.17. 50%

reduction in HDRS score was observed at a mean duration of 3.98 weeks with a standard deviation of ± 0.62 . The response rate of the two antidepressants were compared using student's t test and the results were not significant ($p > 0.05$) imparting the response to both the antidepressants were same in both the group and the difference was not statistically significant.

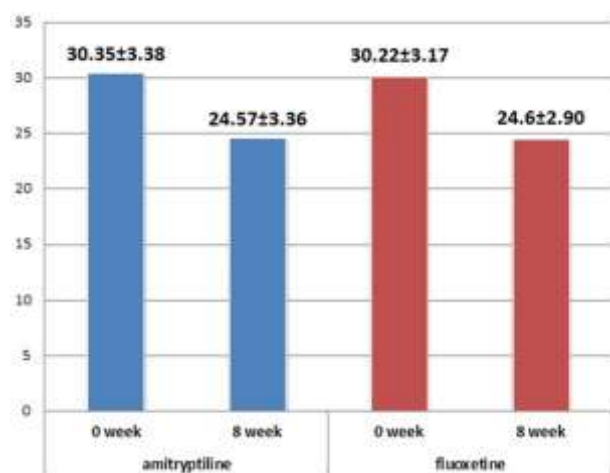


Figure 1: Comparison of efficacy of amitriptyline and fluoxetine.

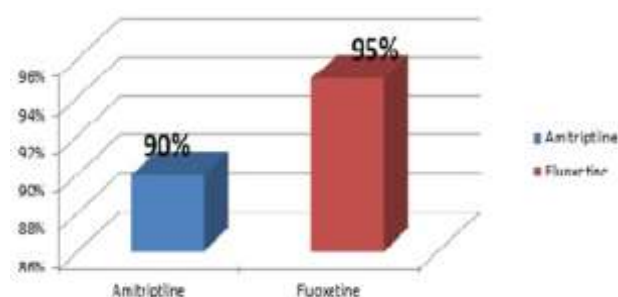


Figure 2: Comparison of Remission rate between amitriptyline and fluoxetine.

In the amitriptyline group, out of 40 patients 4 patient did not achieve remission, i.e. the HDRS score less than or equal to seven at the end of 8 week. The remission was 90% with amitriptyline, while in the fluoxetine group out of 40 patients 2 patient did not achieve remission. The remission in the fluoxetine group was 95% (Figure 2).

Biochemical parameters were normal for all the participants before starting the study and the same biochemical parameters were repeated at the end of the study. The parameter were normal for all the participants there was no alteration in liver function, renal function, serum cholesterol and blood sugar by both the antidepressant. Electrocardiogram was done for all the eighty participants before subjecting them to the study and repeated at the end of the study for all the participants and there was no electrocardiographic abnormality among the study participants after completing the study.

DISCUSSION

Mood disorders are a group of disorders characterized by altered regulation of mood, behavior and affect. It is a clinical syndrome characterized by persistent sadness which persist for two weeks or more and associated altered mood, alteration in sleep architecture, changes in appetite, sexual disturbances and decreased psychomotor activity.

Introduction of new class of antidepressants has significantly changed the management of depression, early identification and treatment at the grass root level that is the primary care level may be beneficial to the patient in reducing the suffering. The treatment of depression has changed from tertiary care to primary care. Amitriptyline is a tricyclic antidepressant; its efficacy is well established in severe depression. Fluoxetine being an SSRI claimed to be equally effective as TCA in treating depression. Data on the response to drug therapy for antidepressants among the South Indian population is unavailable in detail. A meta-analysis by Sarkar S and Grover S has reviewed the efficacy of treatment of depression in Indian context and they have found there were some data from India with respect to the efficacy of antidepressants they have found most of the trials have been shorter duration and has been inadequately powered. The available data shows the superiority of antidepressants over placebo.⁴

This study is also one of the studies, which compares the efficacy of amitriptyline and fluoxetine in the management of depression. As the data among the South Indian population is not available in detail, we planned this study to evaluate the efficacy of amitriptyline and fluoxetine which was the most commonly used antidepressant in our government tertiary care teaching hospital and also to generate data on this so it will be helpful for future research and treatment of the patient related to depression

In a total of eighty patients who participated in the study, 65% of patients were in the age group of 20- 40 years. Epidemiological studies have clearly shown a higher prevalence of all mood disorder under the age group of 40 years.⁵ In this study totally 14% of patients were in the age group of 50 years and above. An outpatient study, which evaluated psychiatric comorbidity in 100 randomly selected patients in the age group of more than 50 years attending geriatric outpatient department has found 29% patients suffered from psychiatric illness of which depression is the most common disorder.⁶

Out of eighty patients who participated in the study, 46% were males and 54% were females. We have found that depression is more in female than male. Study by MM Welshman and Molfson has confirmed the prevalence of depression is approximately twice more common in women than man by studying the epidemiological data on depression worldwide.⁷

The efficacy of the antidepressants was evaluated and found that the fluoxetine group had efficacy rate of 81.40 %, which was slightly more than amitriptyline group 80.95 %. The difference in efficacy between two groups was tested using students t test and the results were statistically insignificant ($p > 0.005$) and there is no statistical significance between two groups in a mean reduction of the HDRS score from the baseline to end of the study implicating both were equally efficacious in treatment of depression. In a meta-analysis study done by Song F et al, they have included 63 randomized study which were comparing the efficacy and acceptability of SSRI and TCA and their study has found no difference in efficacy between SSRI and TCA which is similar to our study.⁸

The response rate in the Amitriptyline group, 50% reduction in HDRS score was observed at a mean duration of 4.08 weeks with a standard deviation of ± 0.76 . In fluoxetine group, 50% reduction in HDRS score was observed at a mean duration of 3.98 weeks with a standard deviation of ± 0.62 . Comparing the response rate of the both groups using students t test showed statistically not significance ($p > 0.05$).

In a 6 week double blind placebo controlled randomized trial on fluoxetine in the management of depression by Robert D Gibson et al has found the rate of improvement for fluoxetine was 35% greater than placebo and fluoxetine is effective in the treatment of depression.⁹ In the amitriptyline group, out of 40 patients, 4 patient did not achieve remission, the HDRS score less than or equal to seven at the end of 8 weeks the remission was 90 % with amitriptyline. While in the fluoxetine group out of 40 patients, 2 patient did not achieve remission, HDRS score less than or equal to seven at the end of eight weeks trial. The remission in the fluoxetine group was 95%.

The observed biochemical parameters in this study were normal for all the study participants after completing the study, there were no electrocardiographic abnormalities among the study participants after completing the study. We conclude that the efficacy of amitriptyline and fluoxetine were studied in our center and the study objectives have been achieved. The efficacy of both the antidepressants in the treatment of moderate to severely depressed patients were studied in detail and from the study we conclude both Amitriptyline and fluoxetine were equally efficacious in the treatment of depression. The study objectives have been achieved, the efficacy and the small sample size and lesser duration of study and open labelled non blinded techniques are the limitations of our study hence we recommend further study with a large sample size and longer duration to generalize the

results of the study we conclude that the early identification and treatment of depression at the primary care level by the primary care physicians may bring a change in the medical and social problems created by depression.

ACKNOWLEDGEMENTS

We would like to thank Dr. Parameshwari director institute of pharmacology Madurai medical college Madurai for allowing us to conduct this study. We also thank Dr. S. Vijayalakshmi and Dr. M. Shanthi professor in pharmacology, Madurai medical college for their help to complete this study

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Reddy MS. Depression: The disorder and burden. *Indian journal psychological medicine*. 2010;32(1):1-2.
2. Tripathi KD. Drugs used in mental illness: antipsychotics and antimanic drugs. In: *Essentials of medical pharmacology*, 7 th edition. New Delhi: Jaypee brothers, 2013: pp. 435.
3. O' Donnell JM, Shelton RC. Drug Therapy of Depression and Anxiety Disorder. In: Brunton LL, Chabner BA, Knollmann BC, Goodman & Gilman's *The Pharmacological basis of therapeutics*, 12th edition. New York: McGraw Hill. 2011: pp. 404-405.
4. Sarkar S, Grover S. A systematic review and metanalysis of trials of treatment of depression from India. *Indian Journal of Psychiatry*. 2014;56:29-38.
5. Weissman MM, Livingston B. Affective disorders in psychiatric disorders in America: The Epidemiologic Catchment Area Study, New York, 1991.
6. Kohn R, Epstein Lubrow G. Course and outcome of depression in elderly. *Current psychiatry Rep*. 2006;8(2):34-40.
7. Weissman MM, Molfson. Depression in women and implication for health care research. *Science*. 1995;269:799-801.
8. Song F, Freemantle N, Sheldon TA. Selective serotonin reuptake inhibitors: Metaanalysis of efficacy and acceptability. *British Journal of psychiatry*. 1993;306-309.
9. Gibbson RD. Who benefiting from antidepressants? *Arch Gen psychiatry*. 2012.69(6):572-9.

Cite this article as: Vasanth S, Sarojini R, Pichai E. Prospective study to evaluate the efficacy of fluoxetine in comparison with amitriptyline in patients with depression. *Int J Basic Clin Pharmacol* 2016;5:2552-5.