Available online on 15.07.2016 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

An International Peer Reviewed Journal

Open access to Pharmaceutical and Medical research

© 2016, publisher and licensee JDDT, This is an Open Access article which permits unrestricted noncommercial use, provided the original work is properly cited

RESEARCH ARTICLE

A RANDOMIZED PROSPECTIVE OBSERVATIONAL STUDY TO EVALUATE THE OUTCOME OF A SSRI, FLUOXETINE ON MEMORY FUNCTIONS IN PATIENTS ATTENDING PSYCHIATRY OPD IN A TERTIARY CARE HOSPITAL

Dr. Prakash Murugaiah^{1*}, Dr. Mahima Alicia²

1Asst Professor of Pharmacology, Govt. Stanley Medical College, Chennai-01, Tamilnadu, INDIA

2Medical Officer, Greater Chennai Corporation, Chennai, Tamilnadu, INDIA

*Corresponding Author's email: <u>prakash18514@gmail.com</u>

Received 12 June 2016; Review Completed 30 June 2016; Accepted 30 June 2016, Available online 15 July 2016

ABSTRACT:

Background: The availability and use of drugs with demonstrable efficacy in psychiatric disorders has grown since the late 1950s. 10% to 15% of prescriptions written are for medications intended to affect mental processes—to sedate, stimulate or otherwise modify mood, thinking or behavior.

Aim & objective: This study was carried out to evaluate the outcome of a SSRI, fluoxetine on memory functions in patients of two different age groups with minor mental illnesses, on long term administration. For this study, patients attending psychiatry OPD in Govt. Stanley medical college & hospital were included and simple subjective tests were carried out to evaluate memory functions.

Materials and Methods:

Memory functions were evaluated using the Wechsler memory scale which consists of seven subsets. Patient's memory was evaluated before treatment, then at the end of 15 days and finally at the end of one month after administration of fluoxetine. Statistical analysis was carried out using Wilcoxon signed-rank test.

Results & conclusion: The results of this study reveal that there was no deterioration in memory functions at first follow-up and they remain the same up to the end of one month. Rather it was observed that there was improvement in memory functions. So, final score of the parameters is because of the resultant activity of direct drug action and improvement in the underlying disease. **Keywords:** Wechsler memory scale, fluoxetine, anti depressants.

INTRODUCTION:

The availability and use of drugs with demonstrable efficacy in psychiatric disorders has grown since the late 1950s to the point that 10% to 15% of prescriptions written in are for medications intended to affect mental processes—to sedate, stimulate or otherwise modify mood, thinking or behavior. Antidepressants are commonly used medications in many psychiatric conditions like depression (42.72%), anxiety disorders like obsessive compulsive disorder, panic attack, psychosomatic disorders and various phobias (11.89%), (10.44%),(10.19%)pain insomnia and bipolardisorder(3.16%)¹. Antidepressants fluoxetine and other Selective serotonergic reuptake inhibitors (SSRIs) are shown to improve memory functions in some studies² while memory parameters were found to decline in some other studies. Fluoxetine and Fluvoxamine were the first widely used selective serotonin reuptake inhibitors. The SSRIs are agents of choice in obsessive-compulsive disorder, as well as in possibly related syndromes of impulse dyscontrol or obsessive preoccupations, including compulsive

gambling, trichotillomania, bulimia (but usually not anorexia nervosa), and body dysmorphic disorders.

Antidepressants are widely used by ambulant patients, including geriatric population. So complete and quantitative evaluation of its outcome on memory functions will helps in making choice of the drug. Therefore this study was carried out to evaluate the outcome of long-term administration of a commonly prescribed SSRI, fluoxetine on memory function in two different age groups with minor psychiatric disorders using a simple scale to assess the memory functions.

Aim: To study the effect of fluoxetine on memory functions.

Objective: To study the effect of fluoxetine on memory functions in two different age groups (between 15 & 45; 46 and 60)

MATERIALS & METHODS:

Study design- Prospective observational study

Study period- july 2013- jan 2014

ISSN: 2250-1177

Study duration- One month/ patient

Place of study- Dept. of Psychiatry, Stanley medical college

Study population- 50 patients in each group

Selection criteria:

A) Inclusion criteria:

- Both sex with age group between 15 and 60 yrs
- Patients with whom rapport can be established/ minor illness
- Patients who can read and write in Tamil(native language)
- Patients with mild depression, anxiety, obsessive compulsive disorder, phobia and psychosomatic disorders who were prescribed fluoxetine were included
- Patients who had given informed consent to participate in this study.

B) Exclusion criteria:

- Patients below 15 yrs and above 60 yrs
- Patients with major psychiatric illness
- Patients on other centrally acting drugs which may impair memory like sedatives, antipsychotics
- Patients with serious systemic disorders like HIV, TB.HTN.DM
- Patients who were on any other antidepressants at the time of enrollment to the study.
- Pregnant and lactating women
- Not willing to participate.

Those patients who were willing to participate in the study were divided into two groups according to their age group

- Group A- 50 patients, between15 and 45 years of age
- Group B- 50 patients, between 46 and 60 years of age

The aim, procedure of the study and the scale used to assess memory functions were explained to the patients. Study was conducted only after obtaining approval from Institutional ethics committee. Patients were asked questions related to the study, after explaining about the study in their own language. Only patients who were willing to participate and give informed consent were included. Written informed consent was obtained and patient's personal data like name, age, hospital number, educational status, occupation, mother tongue were noted at the first visit. Also symptoms, illness duration, past drug history and family history were also noted. A note of the diagnosis and treatment prescribed was recorded in the Performa at each visit. Adverse drug reaction and clinical progress observed by investigator or reported by the patient was also recorded in the pro forma.

Wechsler memory scale was employed to assess the memory functions of the study patients. Baseline

memory evaluation is done on 0 day before starting therapy, then at the end of 15days and then finally at the end of 1month of drug therapy. Diagnosis of case and dosage given are recorded. All patients are started with 20mg fluoxetine.

Tests: The Wechsler memory scale was employed to assess the memory function of patients. It consists of seven subsets. Each has a maximum score of 6, 5, 9,15,23,14 and the score for the last subset varies₆. The tests are as follows:

- 1. **Personal and present memory**: It consists of six simple questions relating to personal and present information. 1 point for each correct response
- 2. **Orientation**: It consists of five questions. 1 point for each correct response
- 3. **Mental control**: This consist of 3 subsets with a maximum of 3 points for each and the total maximum score is 9
- 4. **Immediate recall**: This was evaluated by the test of digit span forward and backward repetition. The maximum score is 15
- 5. **Logical memory**: A passage is read and the patient is asked to repeat the same passage. Verbatim is recorded and the maximum score is 23.
- 6. **Visual reproduction**: 3 cards with geometrical picture are given and the patient is asked to draw the same. The maximum score is 14
- 7. Associate learning: Verbal retention for both similar and dissimilar pairs was assessed. Patients were allowed up to three trials in this test. 1 point for each correct response. Dissimilar pairs were considered as difficult and similar pairs were considered as easy. Net scoring will be sum of subject's credits on easy association divided by 2 and credits on difficult association.

RESULTS:

Data was statistically analyzed and compiled.

Statistics - Wilcoxon Signed Rank Test using SPSS version 15.2.

Patients were divided into two groups based on their age.

- Sex distribution does not show any major difference between two groups.
- All subsets of memory function tests were found not to deteriorate but rather improve at the first and second follow up in both the study groups and the p value is highly significant. (<0.001)
- The improvement in memory functions were to the same level in both the groups at the end of 15 days and at the end of 1 month (>0.05)
- No patient in either group complained of any sort of serious adverse effects.

The mean memory score of each subtest in both the groups was tabulated as shown below.

Table 1: Mean memory score obtained in both the groups at the baseline; end of 15 days & at the end of one month

	Group I (15-45yrs)			Group II(46-60yrs)		
Subtest	Baseline	15 days	1 month	Baseline	15 days	1 month
Personal& Present memory(6)	5.80	5.88	5.96 [*]	5.84	5.92	6.00*
Orientation(5)	4.84	5.00*	5.00	4.84	5.00*	5.00
Mental control (9)	6.04	6.88***	7.40***	5.88	6.68***	7.36***
Immediate Recall (15)	10.52	11.44***	12.48***	9.96	10.88***	11.68***
Logical Memory(23)	18.12	18.76***	19.52***	17.84	18.60***	19.28***
Visual Reproduction (14)	9.68	10.48***	11.40***	9.60	10.48***	11.24***
Associate Learning	11.60	12.36***	13.12***	11.40	12.12***	12.96***

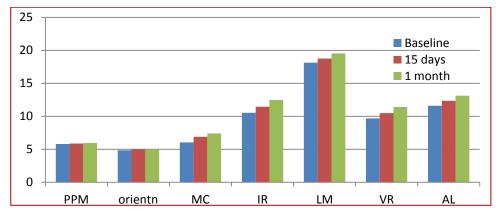


Figure 1: showing Effect of fluoxetine on memory and cognition subtests in Group A

PPM – present & past memory MC – Mental control IR – Immediate recall

LM- Logical memory VR – visual reproduction AL – Associate learning

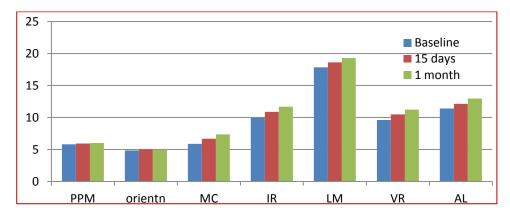


Figure 2: showing, Effect of fluoxetine on memory and cognition subtests-Group B

ISSN: 2250-1177

DISCUSSION:

Cognitive function is the brain's ability to acquire process, integrate, store, and retrieve information. It may be impaired with age, due to some depressive disorder and as a result of drug treatment, including some forms of antidepressant drug treatment. Fluoxetine is a commonly used antidepressant which acts by selectively inhibiting reuptake of 5HT. Other SSRIs (selective serotonin reuptake inhibitors) are fluvoxamine, paroxetine, sertraline, citalopram, escitalopram.

Fluoxetine is used as an antidepressant in endogenous depression and SSRIs are the first choice drugs because of their tolerability and safety. They are also used in anxiety disorders& obsessive compulsive neurosis. Some patients who were taking SSRIs like fluoxetine complain of forgetfulness. Though some studies had shown that SSRIs like fluoxetine improves cognition and memory, there are few studies which actually showed that cognition and memory had declined. Cognitive and psychomotor dysfunctions are nothing but symptoms of depression and they will improve along with mood during effective drug therapy. Most of the patient with depression and anxiety will definitely

show impairment of memory and cognition. By striking at the root cause, fluoxetine had also improved memory and cognitive functions. In both the study groups, fluoxetine had not shown any impairment of memory and cognitive status.

In our study, fluoxetine had produced statistically significant improvement and there was no deterioration of subset scores of Wechsler memory scale in both the age groups. This improvement is statistically significant when compared to the baseline score of the same group. These findings are significant and are of clinical importance.

A further study is therefore essential in patients of older age group with already pre-existing memory

impairment, to assess the longterm outcome of fluoxetine on memory functions.

CONCLUSION:

During this study period of one month, there was no deterioration of memory functions, rather there was improvement in memory functions. So, final score of the cognitive parameters are because of the resultant activity of direct drug action and improvement in the underlying disease. Fluoxetine does not cause any memory impairment in both age groups who do not suffer from any pre-existing conditions affecting memory.

REFERENCES:

- Joseph J, Keene JR, Galt T, Martin F. Antidepressants use in psychiatry and medicine. J Am Dent Assoc. 2003; 134:71–9.
- Jay Karan et al journal of psychiatric medicine 2009 vol 31 issue 1
- 3. Jacqueline D. Memory loss in a patient treated with fluoxetine. Ana Pharmacotherapy. 2003; 37:1800–3.
- 4. Tripathi KD, Essentials of medical pharmacology, 6th edition, Anti-depressants page no 444-446.

How to cite this article:

Murugaiah P, Alicia M, A randomized prospective observational study to evaluate the outcome of a SSRI, fluoxetine on memory functions in patients attending psychiatry OPD in a tertiary care hospital, Journal of Drug Delivery & Therapeutics. 2016; 6(4):37-40

ISSN: 2250-1177