Effect of Fluoxetine Monotherapy on Thyroid Function Tests in Male Patients with Depression

Imad A-J Thanoon* MBChB, MSc, PhD
Wahda B.Al-Youzbaki** MBChB, MSc PhD
Gaith M.Abdul Razzak*** BSc Pharmacy

Abstract:
Objective: To study the affect of fluoxetine, on thyroid function in male patients with depression.
Design: Case-control study
Setting: Collection of cases, with done in the department of pharmacology-college of medicine IN mosul, from the 1st of January to 1st of May 2006. Measurements were done in the nuclear medical centre.
Patient & Methods: Thirty male patients with depression, without any history of thyroid disease treated by fluoxetine, were included in this study and compared with thirty apparently health male subjects as controls. Thyroid function was assayed by measuring serum total thyroxine (TT4), total triidothyronine (TT3) and thyroid stimulating hormone (TSH) using radioimmunoassay method.
Results: There was a non significant difference between patients with depression on fluoxetine therapy, with regard TT3, TT4 and TSH levels, and the control.
Conclusion: Fluoxetine antidepressant therapy can be regarded as a safe anti depressant drug, in male patients with depression as far as thyroid function is concerned.

Key words: fluoxetine: thyroid function test.

Introduction:

Thyroid disease represent a spectrum of clinical and biochemical features of varying severity. Although primary disease of the thyroid gland are the most common, pituitary disease and the use of certain drugs that alter thyroid hormone synthesis or metabolism can also give rise to thyroid dysfunction [1]. The pathways of thyroid hormone synthesis, secretion, transport in the circulating and metabolism, offer numerous targets for drug interaction [2]. Fluoxetine is the protype of antidepressant drugs that selectively inhibit serotonin reuptake (SSRI). Although is now the most widely prescribed antidepressant in the United States, also has been used for a variety of other indications, including, anorexia nervosa, panic disorders, pain associated with diabetic neuropathy and for pre menstrual syndrome [3].

SSRIs, have a range of unwanted effects, including, nausea, dizziness, weight loss and sexual dysfunction [4], but are less sedating and have lower antimuscarnic and cardiotoxic effect than the tricyclic anti- depressant [5].

The aim of this study is to examine the effect of chronic fluoxetine therapy in male patients with depression, on thyroid function test.

Patients & Methods:

Patients included in this study were selected according to the following criteria:

1-male patients with depression (diagnosed by specialist in the field of psychiatry).
2-On fluoxetine therapy, in a continuous fixed dose for at least 3 months.
3-No history of thyroid disease or other illnesses (as renal, hepatic, cardiovascular or D.M.).
4-No drugs being used other than fluoxetine.

Out of 48 patients, referred to us, only 30 patient met the criteria and included in this study, who were with mean ±SD age (31.23 ± 6.71) year and ranged between 18 and 45 year. They were all on fluoxetine therapy in a dose of 20 mg/d for mean ± SD duration 9.03 ± 4.99 month (ranged between 3 and 24 month).

Also, 30 apparently healthy male subjected, age-matched with mean ± SD age (31.4 ± 6.86) year and ranged between 18 and 45 year, were included in this study as a control.

Fasting blood samples were collected between 8-10 am venipuncture from all patients and control, taking 5 ml venous blood from each in a plain tube, then after centrifugation, Sera were used for measuring levels of TT3. TT4 and TSH by radioimunassay method, using Kits from Immunotech company – France.

Statistical method used for analysis of data include determination of mean ± standard deviation, unpaired t – test. The differences between observations were considered significant at $p \leq 0.05$.

Results:

There was a non – significant difference between depressed male patients on fluoxetine therapy, with regard TT3 (2.01 ± 0.26 nmol / L), TT4 (115.78 ±17.81 nmol/L) and TSH (2.22 ± 0.61 mIU /L), and the control (2.06 ± 0.27 ; 118.81 ± 19.93 ; 2.01 ±0.59 respectively). Table (1)

Table 1: Comparison between, serum levels of TT3 TT4 and TSH of the depressed patients on fluoxetine and the control.

Parameters	Mean ± SD		p-value
	Patients n=30	Control n =30	
TT3 (nmol/l)	2.01±0.26	2.06±0.27	0.49
TT4 (nmol/l)	115.78±17.81	118.81±19.93	0.534
T5H (mIU/l	2.22±0.61	2.01±0.59	0.198

Discussion:

This study found insignificant difference, in the serum level of TT3, TT4 and TSH, in depressed male patients on chronic fluoxetine therapy, in comparison with the control. Fara et al, concluded, that hypothyroidism and Hyperthyroidism are extremely uncommon in depressed out patients [6]. Sayud et al [7], on studying effects of sertraline (another selective serotonin reuptake inhibitor antidepressant drug), on plasma cortisol, prolactin and thyroid hormones in female depressed patients, found that T3 levels were lower, while cortisol, prolactin, TSH and T4 levels did not differ from values in female controls [7] . While Gendall et al, by evaluating thyroid function in patients on fluoxetine or nortriptyline, observed reduction in total and free T4 levels in responders to therapy with nortriptyline or fluoxetine [8]. Gitlin et al, on examining the relation between baseline measurements of thyroid function and response to selective serolonin reuptake inhibitors, and considering effects of these drugs on thyroid function, concluded that low TSH values correlated with greater improvement in depression symptoms and optimal thyroid function may be necessary for an optimal response to antidepressant [9].

The current study concluded that fluoxetine therapy can be regarded as a safe antidepressant, in male patients with depression as far as thyroid function is concerned

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*Assist. Prof. Depart. Of Pharmacology, College of Medicine - University of Mosul – Iraq

**Lecturer, Depart. Of Pharmacology, College of Medicine - University of Mosul – Iraq

***Department of Clinical Pharmacy, College of Pharmacy -University of Mosul – Iraq