A Study about Escitalopram Versus Citalopram in the Treatment of Depressive Disorders

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ABSTRACT

Background and aim: To compare the therapeutic efficacy , time onset of action, and patient compliance of escitalopram versus citalopram in the treatment of depressive disorders (DD) in Kirkuk City _Iraq

Materials and Method: 100 outpatients complaining of (DD) consulting psychiatric unit in Azadi teaching hospital were randomly categorized in to two therapeutic groups with escitalopram and citalopram. A structural interview form (questionnaire) containing socio demographic data and assessing 8 target symptom of depression according to (DSM-IV) derived from a preliminary pilot study in the same unit to reveal most common presentations of (DD) in Azadi teaching hospital, psychiatric unit inpatients in Kirkuk city , these symptoms were assessed according to a 4 degree scale (0_3) according to clinical interview by consultant psychiatrist on call, patients were followed up for 12 weeks.

Results: The majority of the study sample were aged group was between (30-39) years, the male formed (38-40%), while the female (60-62%) in each group, (54-58%) of them were married, (48%) of the escitalopram group had moderate economic level while (44%) the of the citalopram group had low economic level, Muslim religion constitute (100%), and the no history of medical illness formed (80-88%).

Conclusion: The our study concluded statistically significant superiority of escitalopram versus citalopram regarding the effectiveness, early symptom relief, patient compliance and significant change in dose score, After 12 weeks of treatment with fixed dose of 20 mg of escitalopram and 20 _40 mg.

Recommendations: Further comparative studies between escitalopram andcitalopram are recommended with large sample sizes and longer duration of follow up to cover all stages of treatment of depressive disorder (DD) symptom.

Keywords: Escitalopram, citalopram, depressive disorders (DD), efficacy.

INTRODUCTION

Depressive Disorders (DD) is a common and serious psychiatric condition with significant public health implication, all over the world which estimates reaching as high as 21 percent in incidence (FDA center for Drug Evaluation and Research, 2004; FDA center for Drug Evaluation and Research, 2009; Kaplan and Sadock, 1985).

The world health organization estimates that by 2030 (DD) will be second only to ischemic heart disease as an overall cause of disability and disease burden (Mathers and Loncar, 2006).

Selective serotonin reuptake inhibitors (SSRIs) inhibit serotonin reuptake leading to normalize the level of serotonin in the brain with no absolute effect on norepinephrine, muscarinic, histaminic, or alpha-adrenergic receptors, disturbance in the serotonin systems of the brain are key factors in development of (DD) (Bertam, 2011; British National Forulary, 2004).

SSRIS now considered as first line treatment for depression SSRIS efficacy is superior to placebo and other classes of antidepressants in treatment of (DD). Escitalopram is the pure actives S-Isomer (enantiomer) of the race mate SR_ citalopram, citalopram composed of two mirror_ image molecules, the stereoisomer R_ citalopram 50% and S_citalopram 50% (Bertam, 2011; British National Forulary, 2004; Kirino, 2012; Valery *et. al*., 2017).

Separation of and experimentation with the two enantiomers have found that the SSRIS activity of S_citalopram is 100 fold more potent than that of R_citalopram and has shown significant activities at the other monoamine transporters in more than 144

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binding sites (Valery *et. al*., 2017).

The single and multiple dose pharma-cokinetics of both escitalopram and citalopram are linear and dose proportional in a dose range of 10_30 mg/day and 10_60 mg/day respectively.

Biotransformation for both is mainly hepatic with mean terminal half-life of about 27_32 hours and 35 hours respectively. Following a single oral dose (20mg) for escitalopram or up to 40 mg tablet of citalopram the peak blood level occur at about 5 hours, 4 hours respectively.

The systemic clearance of both drugs are 600 ml/minutes with approximately 7% of that due to renal clearance for escitalopram and 330 ml/minutes with approximately 20% of that due to renal clearance (Bertam, 2011; Kasper, 2005). Side effects include insomnia, constricted pupils, dry mouth, dizziness, sweating, constipation, fatigue and indigestion (British National Forulary, 2011; Mathers, 2006). Delay ejaculation, anorgasmia ECG measurement should be considered for patients with cardiac diseases. electrolytes disturbance should be corrected before starting treatment (Van, 2009; MHRA drug safety update, 2011). These drugs should be used with caution in patients with epilepsy, or on electroconvulsive therapy, with uncontrolled diabetes hepatic dysfunction, susceptibility to angle closure glaucoma, history of mania, or in patients with bleeding disorders (Bertam *et. al*., 2011; MHRA drug safety update, 2011, FDA center for Drug Evaluation and Research, 2009). alcohol intake should be avoided, interaction with mono amine oxidize inhibiters can be fatal.

Over doses cause relatively minor untoward effects such as agitation tachycardia, hypertonia. The dose should be tapered over at least few weeks (Bertam *et. al*., 2011; Kirino, 2012) [1,8]. There is a minor risk of congenital heart defect when taken during early pregnancy. If these drugs used during third trimester there is a risk of neonatal withdrawal symptoms and persistent pulmonary hypertension in the neonate.

MATERIALS AND METHODS

A random single blind comparative therapeutic study was conducted between escitalopram and citalopram on an oral dose of 20 mg as starting dose with follow up to 12 weeks on four occasions (base line, week 3, week 6, week 12). 100 outpatients complaining of (DD) consulting psychiatric unit in Azadi teaching hospital were divided randomly in to two treatment groups (50 patients for each) for the period from November 2013 to May 2014.

All the patients were informed about the details of the study and signed to share in the study according to the contract. Escitalopram and citalopram were prescribed freely in the hospital for each group and were asked to come for next follow up for assessing improvement of (DD) symptoms, compliance to drugs, and satisfaction in sharing in the study.

A structural interview form questionnaire containing survey for socio demographic data and a four degree scale from (0 to 3) for assessment of 8_target symptoms of depression derived from DSM_1V as regard response to treatment policy, the 8 target symptoms were chosen according to previous study in the same unit revealed most common presenting symptoms of depression among out patients consulting this unit the severity scale composed of four grades (0 = not at all, 1=some times, mild forms,2= nearly always, moderate forms,3= always sever forms).

After 12 weeks of treatment with fixed dose of escitalopram (20 mg) and a dose of (20 to 40 mg) of citalopram.

The total score of (DD) symptoms that reached (0 degree) were assessed as well as early symptom relief, patient compliance significant change in dosing scores using statistical package for the social science (SPSS) version 19.0 was used, while differences in parameters between groups were evaluated with students T . test**.**

RESULTS

Table (1): Distribution of the study sample according to the demographical characteristics with mean and standard deviation

Characteristics		Escitalopram (N=50)	Citalopram (N=50)	P. value
Age	20-29	5	8	**0.660**
	30-39	23	25	
	40-49	19	12	

	50 andabove	3	5	
Total		**50**	**50**	
Mean ± SD = 2.63 ± 1.447				
Gender N (%)	Male	37 (40.0)	19 (38.0)	0.8728
	Female	20 (60.0)	31 (62.0)	0.8981
Total		**50**	**50**	
Marital Status N (%)	Single	15 (30.0)	14 (28.0)	0.8527
	Married	29 (58.0)	27 (54.0)	0.7893
	Divorced	3 (6.0)	4 (8.0)	0.7055
	Widow	3 (6.0)	5 (10.0)	0.4795
Total		**50**	**50**	
Financial Status N (%)	Good	12 (24.0)	8 (16.0)	0.3711
	Moderate	24 (48.0)	20 (40.0)	0.5465
	Low	14 (28.0)	22 (44.0)	0.1824
Total		**50**	**50**	
Religion N (%)	Muslim	50 (100.0)	50 (100.0)	-
	Others	0 (0.0)	0 (0.0)	-
Total		**50**	**50**	
History of other illness N (%)	Non	44 (88.0)	40 (80.0)	0.6625
	Hypertension	4 (8.0)	9 (18.0)	0.1655
	Diabetes mellitus	1 (2.0)	0 (0.0)	0.3173
	Others	1 (2.0)	1 (2.0)	-
Total		**50**	**50**	

Table (2): Distribution of the study sample according to the number of cases (n) and percentage for each escitalopram and citalopram of the whole study samples:

Drug used	Scores	Time point N (%)				Total
		Baseline	Week 3	Week 6	Week 12	
Escitalopram	Non	70 (10.8)	100 (15.5)	179 (27.7)	297 (46)	646
	Mild	117(19.9)	183 (31.1)	190 (32.3)	98 (16.7)	588
	Moderate	157 (52.3)	107 (35.7)	31 (10.3)	5 (1.7)	300
	Sever	56 (84.8)	10 (15.2)	0 (0.0)	0 (0.0)	66
Citalopram	Non	71 (10.9)	113 (17.4)	171 (26.3)	296 (45.5)	651
	Mild	116 (21.2)	154 (28.2)	180 (33.0)	96 (17.6)	546
	Moderate	168 (48.8)	119 (34.3)	49 (14.2)	8 (2.3)	344
	Sever	45 (76.3)	14 (23.7)	0 (0.0)	0 (0.0)	59

Table (3): Distribution of the study sample according to the 8 items (indication) of total score, mean andstandard deviation score, and score changes during 12 weeks of treatment with escitalopram andcitalopram of the whole study samples:

Items	Time point	Escitalopram (N=50)	Citalopram (N=50)	t.	P. value
Total scores, Mean (SD)	Baseline	12. (4.4)	11.7 (2.6)	0.330	0.742
	Week 3	8.5 (3.1)	8.7 (2.6)	- 0.244	0.808
	Week 6	5.0 (3.0)	5.6 (2.6)	- 0.926	0.357
	Week 12	2.2 (1.9)	2.2 (1.7)	- 0.244	0.824

Table (4): Distribution of the study sample according to the mean andstandard deviation (SD) of administered dose during 12 weeks of treatment with Escitalopram andCitalopram group.

Parameters	Time Point	Escitalopram (N=50)	Citalopram (N=50)	t.	P. value
Administered dose, mean(SD)	Baseline	18.8 (3.3)	19.6 (2.0)	- 1.476	0.143
	Week 3	19.2 (2.7)	19.8 (1.4)	- 1.376	0.172
	Week 6	22.6 (5.6)	25.2 (8.6)	- 1.783	0.078

	Week 12	22.0 (6.4)	26.2 (9.2)	- 2.645	0.010

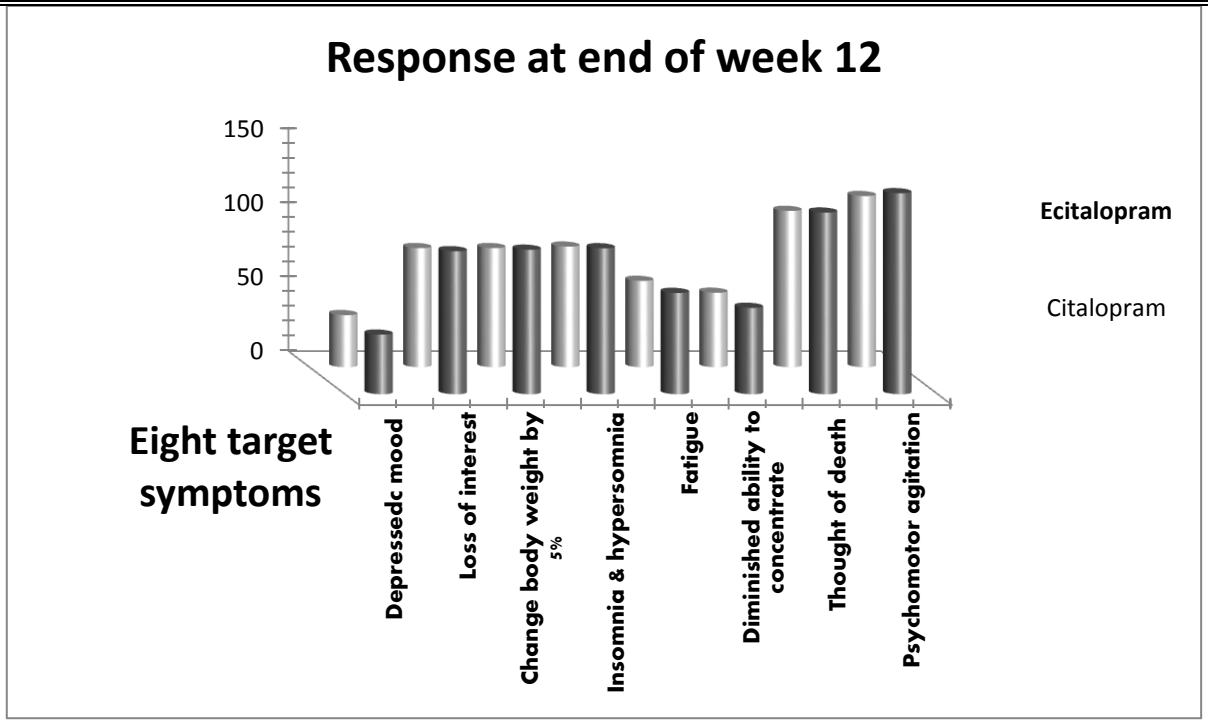

Figure (1) Distribution of score of response the citalopram andescitalopram according to the eight target symptoms in the whole study sample.

This figure shows that the highest response score of escitalopram were in thought of death andpsychomotor agitation target symptoms.

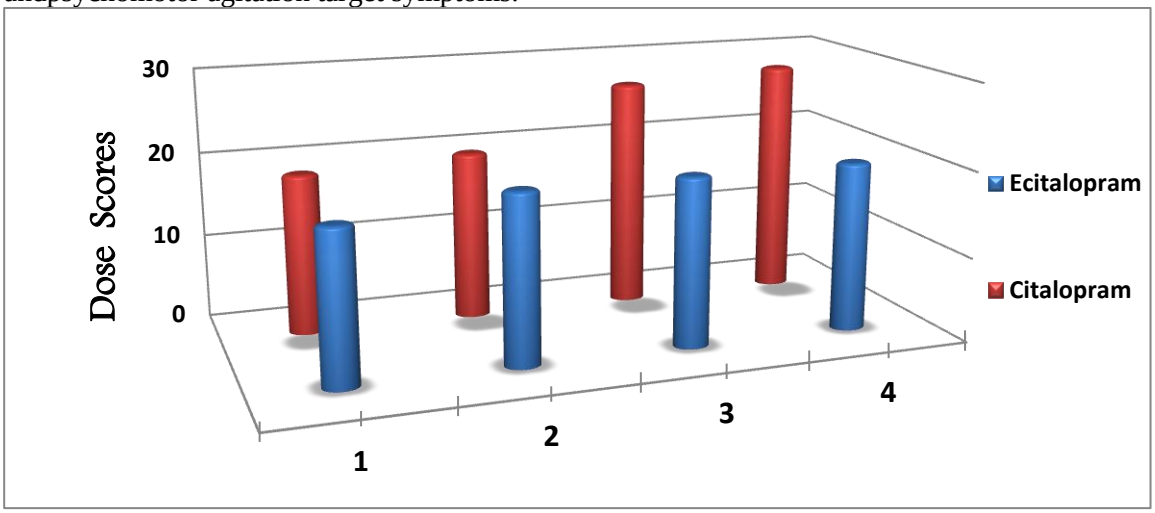

Figure (2): Distribution the dose scores in both citalopram andescitalopram drug according to the duration of treatment in the whole study sample.

This figure shows that the escitalopram drug group had fixed dose 20 mg/day, while the citalopram drug group needed increasing up to 40 mg/day to get the best possible result at the end 12 weeks of treatment.

DISCUSSION

Mean and standard deviation (SD), number of cases (No.) and percentage (%) for patients characteristics of each escitalopram and citalopram groups are described in table (1) referring to good matching of selected patients in the groups. Although mean and (SD) of the results of 12weeks treatment yelled non-significant difference (table 4) all treated individual symptom of (DD) at the end of 12 week showed high response to escitalopram than those treated with citalopram (figure 1). The superiority of escitalopram over citalopram was more

pronounced in severely depressed patients due to high degree of selectivity of S. isomer of the drug and good patients compliance for S. isomer , this results are congruent with many studies in the world about efficacy comparison between these two drugs (Gorman *et. al*., 2008; Kirino, 2012; UIIa *et. al*., 2004; Valery *et. al*., 2007).

From week 6 andup words 21 patients out of 50 patients in citalopram group needed higher doses according to assessments done by consultant psychiatrists on call from 20 mg up to 30_40 mg to get the same response as that with 20mg of escitalopram (figure 2) the significant changes in dose score (P. value 0.001) shown in (table 5) indicated that escitalopram is superior to citalopram as regards to treatment of (DD) this result is corresponding with other studies in the world (Burke et. al., 2002; UIIa *et. al*., 2004).

CONCLUSIONS

The results of the current study confirmed that the SSRI escitalopram 20 mg tablet had better efficacy than citalopram 20 mg tablet as regards magnitude of effect, cost andtime onset of action.

RECOMMENDATION

Further comparative studies between escitalopram andcitalopram are recommended with large sample sizes and longer duration of follow up to cover all stages of treatment of depressive disorder (DD) symptom**.**

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