

# A comparative study of electroconvulsive therapy plus antidepressant versus anti-depressant alone in patients of depression

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## Abstract

**Introduction:** Depression is a condition characterized by poor response and prognosis, as well as, it is associated with lower quality of life of patients and higher mortality. It is predicted that depression will be listed as the second highest cause to result in huge economic burden by 2020. Published evidences suggested that approximately 30% of patients with depression do not response to treatment with at least a tricyclic antidepressant (TCA) at a minimum dose of 150 mg/day of imipramine (or equivalent drug) for 4 to 6 weeks', which condition was defined as treatment-resistant depression (TRD) To address the issues caused by the use of antidepressant, electroconvulsive therapy (ECT), which is commonly recognized as an effective therapeutic intervention targeted at patients with TRD, was developed. **Aims and Objective:** To assess the effective ness of Electroconvulsive Therapy plus Antidepressant versus Antidepressant Alone In Patients of Depression. **Methodology:** After approval from institutional ethical committee a Randomized clinical trial was carried out at tertiary care hospital in 60 patients diagnosed as uni-polar or bi-polar depression as per inclusion criteria depression patients, after taking their written consent about explaining nature of treatment they would be received were randomly assigned into the two groups namely ECT (Electro Convulsive Therapy ) plus Citalopram and Citalopram alone respectively **Result:** Distribution of Depression patients as per ADAS- Cognitive scale shows at 2,6 and 12 moths mean±standerd deviation score 50±0.6, 45 ±0.8, 39±0.1 and 35±0.9, 33±1.0, 23±0.7 respectively this observed difference was statistically highly significant( p<0.000 1). Distribution of Depression patients as per MMSE - Cognitive scale shows at 2,6 and 12 moths mean±standerd deviation score were 43±0.45, 35±0.35, 32±0.23 and 29±0.8, 25±0.9, 23±1.0 respectively this observed difference was statistically highly significant( p<0.000 1). Distribution of Depression patients as per UKU Scale subjected to sleep shows at 2,6 and 12 moths mean±standerd deviation score were 0.75±0.5, 0.65±0.45, 0.95±0.35 and 0.44±0.23, 0.25±0.22, 0.32±12 respectively this observed difference was not statistically significant (p>0.05) **Conclusion:** The effectiveness of ECT plus Citalopram was higher compared Citalopram alone group with the side effects comparable to the Citalopram only group so ECT plus Citalopram should be used to treat the patients of depression than Citalopram alone

**Keywords:** ECT, Citalopram

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## INTRODUCTION

Depression is a condition characterized by poor response and prognosis, as well as, it is associated with lower

quality of life of patients and higher mortality. It is predicted that depression will be listed as the second highest cause to result in huge economic burden by 2020. Published evidences suggested that approximately 30% of patients with depression do not response to treatment with at least a tricyclic antidepressant (TCA) at a minimum dose of 150 mg/day of imipramine (or equivalent drug) for 4 to 6 weeks', which condition was defined as treatment-resistant depression (TRD).<sup>1,2</sup> Treatment for TRD has been becoming a thorny problem through a diversity of treatment modalities has been developed. Previously published randomized controlled trials (RCTs) and systematic reviews revealed that antidepressant, especially selective serotonin reuptake inhibitors (SSRIs), may be apotential agent to improve the status of adults

with TRD,<sup>3,4</sup> whereas, a series of serious adverse reactions limit the use of Antidepressant.<sup>5</sup> to address the issues caused by the use of antidepressant, electroconvulsive therapy (ECT), which is commonly recognized as an effective therapeutic intervention targeted at patients with TRD, was developed.<sup>6</sup> An emerging literature demonstrates the importance of ECT in restoring function and health related quality of life in depressed patients<sup>7,8</sup>. The mechanism of ECT treating TRD is still uncertain.<sup>9</sup> Many of previous summaries include 2 points: ECT can increase the concentration of prolactin (PRL) transiently and then the levels of dopamine (DA) and 5-hydroxy tryptamine (5-HT) were increased<sup>10</sup>; and the concentration of brain-derived neurotrophic factor (BDNF) was increased under the stimulation by using ECT and then effectively improve the efficacy.<sup>11,12</sup> Our meta-analysis also validated that ECT combined with antidepressant or ECT alone are effective alternatives compared with antidepressant alone in treating patients with TRD although higher incidence of somatization occurred in the ECT plus antidepressant in the 4<sup>th</sup> weeks after treatment.

### MATERIAL AND METHODS

After approval from institutional ethical committee a Randomized clinical trial was carried out at tertiary care hospital in 60 patients diagnosed as uni-polar or bi-polar depression as per inclusion criteria depression patients, after taking their written consent about explaining nature of treatment they would be received were randomly assigned into the two groups namely ECT (Electro Convulsive Therapy) plus Citalopram and Citalopram alone respectively. Inclusion criteria in the study were<sup>14</sup>: Major depression (single episode, recurrent, or bipolar) verified by Mini-International Neuropsychiatric Interview Plus (MINI-PLUS). Treatment with ECT in one of the 4 participating hospitals. No more than 15 points in the Montgomery A° sberg Depression Rating Scale (MADRS) scale combined with at least much-improved scoring in the Clinical Global Impression(CGI) scale according to the patients' judgment. Exclusion criteria were: Schizophrenia or schizoaffective disorder, Dependence or substance abuse during the past year, Any contraindication to ECT, More than 3 weeks since last ECT, Younger than 18 years, Pregnant or nursing. Mini Mental State Examination (MMSE) is a screening tool used here to assess cognitive status. It ranges from zero (maximal deficit) to 30 (no deficit)<sup>15</sup> Alzheimer's Disease Assessment Scale (ADAS)<sup>16</sup> is a scale also used to assess cognitive status. It ranges from zero (no mistake) to 85 (no correct task). Utvalg for Kliniske Under søgelsler is a scale designed to pick up adverse effects in clinical trials of psychopharmacology. It was administered at 2, 6 and 12 months. In the report, the

subjective sleep item, which ranges from zero (no problem) to 3 (severe memory loss), is presented.

### RESULTS

**Table 1:** Distribution of depression patients as per ADAS- Cognitive scale

ADAS-scale	ECT plus Citalopram (n=30)	Citalopram Alone (n=30)	p-value (unpaired t-test)
At 2month (Mean±SD)	50±0.6	35±0.9	t=75.95,df=58, p<0.000 1
At 6 month (Mean±SD)	45 ±0.8	33±1.0	t=51.32,df=58, p<0.0001
At 12 month (Mean±SD)	39±0.1	23±0.7	t=123.93,df=58, p<0.0001

Distribution of Depression patients as per ADAS- Cognitive scale shows at 2,6 and 12 moths mean±standerd deviation score 50±0.6, 45 ±0.8, 39±0.1 and 35±0.9, 33±1.0, 23±0.7 respectively this observed difference was statistically highly significant( p<0.000 1).

**Table 2:** Distribution of depression patients as per mmse - cognitive scale

MMSE Scale	ECT plus Citalopram	Citalopram Alone	p-value (unpaired t test)
At 2month (Mean±SD)	43±0.45	29±0.8	t=83.54,df=58, p<0.000 1
At 6 month (Mean±SD)	35±0.35	25±0.9	t=56.72,df=58, p<0.000 1
At 12 month (Mean±SD)	32±0.23	23±1.0	t=48.04,df=58, p<0.000 1

Distribution of Depression patients as per MMSE - Cognitive scale shows at 2,6 and 12 moths mean±standerd deviation score were 43±0.45, 35±0.35, 32±0.23 and 29±0.8, 25±0.9, 23±1.0 respectively this observed difference was statistically highly significant( p<0.000 1).

**Table 3:** Distribution of Depression patients as per - UKU Scale

UKU Scale subjected to sleep	ECT plus Citalopram	Citalopram Alone	p-value (unpaired t-test)
At 2month (Mean±SD)	0.75±0.5	0.44±0.23	t=0.99,df=58, p>0.05
At 6 month (Mean±SD)	0.65±0.45	0.25±0.22	t=1.09,df=58, p>0.05
At 12 month (Mean±SD)	0.95±0.35	0.32±12	t=1.48,df=58, p>0.05

Distribution of Depression patients as per UKU Scale subjected to sleep shows at 2, 6 and 12 moths mean±standerd deviation score were 0.75±0.5, 0.65±0.45, 0.95±0.35 and 0.44±0.23, 0.25±0.22, 0.32±12 respectively this observed difference was not statistically significant (p>0.05)

## DISCUSSION

From Table 1. There was significantly higher score was there in ECT plus Citalopram group compared to Citalopram alone group, i.e. score at 2,6 and 12 moths mean±standerd deviation were 43±0.45, 35±0.35, 32±0.23 and 29±0.8, 25±0.9, 23±1.0 respectively this observed difference was statistically highly significant( $p < 0.0001$ ). This could be due to the reason that ECT can increase the concentration of prolactine (PRL) transiently and then the levels of dopamine (DA) and 5-hydroxy tryptamine (5-HT) were increased<sup>10</sup>; and the concentration of brain-derived neurotrophic factor (BDNF) was increased under the stimulation by using ECT and then effectively improve the efficacy.<sup>11,12</sup> Findings are similar to Navarro V *et al* (2008)<sup>17</sup>. From Table 2. Distribution of Depression patients as per MMSE - Cognitive scale shows at 2,6 and 12 moths mean±standerd deviation score were 43±0.45, 35±0.35, 32±0.23 and 29±0.8, 25±0.9, 23±1.0 respectively this observed difference was statistically highly significant( $p < 0.0001$ ). From Table 3. Distribution of Depression patients as per UKU Scale subjected to sleep shows at 2,6 and 12 moths mean±standerd deviation score were 0.75±0.5, 0.65±0.45, 0.95±0.35 and 0.44±0.23, 0.25±0.22, 0.32±12 respectively this observed difference was not statistically significant ( $p > 0.05$ ) this indicates that evenif the side effects are slightly more in ECT plus Citalopram than the Citalopram alone group but this was statistically not significant. From all above three Tables The effectiveness of ECT plus Citalopram was significantly higher than Citalopram alone group with the side effects comparable to the Citalopram group so ECT plus Citalopram should be used to treat the patients of depression that Citalopram alone.

## CONCLUSION

The effectiveness of ECT plus Citalopram was higher compared Citalopram alone group with the side effects comparable to the Citalopram only group so ECT plus Citalopram should be used to treat the patients of depression than Citalopram alone.

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