Electroconvulsive Therapy in the Adolescent Group
Case Report

ABSTRACT
Electroconvulsive therapy in the adolescent group case report
Electroconvulsive therapy (ECT) is an effective method for the treatment of mental illnesses. Use of ECT in children and adolescents is rare although studies have shown equal efficacy as in adults with lower rate and severity of adverse effects. This paper discussed the impact of ECT usage in three adolescent patients who were diagnosed with several disorders and refractory to other treatment modalities. It was observed that all three adolescents benefited from the treatment with few adverse effects. If resistance to other modalities exists in adolescent patients, ECT should be considered and applied; and if not applicable, the patient should be referred to the centers where it is applied. In addition, we believe that such efforts that help clinicians increase their knowledge and experience on ECT and promote the conditions to implement ECT in child and adolescent psychiatry clinics will be useful.

Keywords: Adolescent, electroconvulsive therapy, treatment refractory

INTRODUCTION
Electroconvulsive therapy (ECT) is an effective treatment method for the treatment of mental disorders (1). It is still frequently used in adult patients despite all advances in psychopharmacology since 1930’s. Although studies reported similar efficacy in children and adolescents with lower rates and severity of adverse effects, the use of ECT in these patient groups is rare (2,3). The frequency of ECT use in children and adolescents was also reported as low in Turkey (4). However, the studies regarding use of ECT in adolescence began in 1980s, where it was reported to be more effective than psychopharmacology alone in appropriate patients selected in terms of diagnosis, severity of symptoms and refractoriness to psychopharmacology (5). This article will discuss the effects of the use of ECT in three inpatients who were resistant to other treatments with various diseases.

CASE 1
E.A. was a 16-year-old male patient. He was admitted to our outpatient clinic with complaints of aggression, hyperactivity, decreased sleep, increased speech, and talking to the walls. Medical history noted...
that he was living in a residence since five years of age
with no psychiatric complaint ever till 10 days ago,
when his complaints started with aggressiveness.
Physical examination showed increased speech,
grandiosity, increased psychomotor activity, and
accelerated association of ideas. The patient was
interned with the diagnosis of manic episode of
bipolar disorder. His Young Mania Rating Scale
(YMRS) score was 36. After no therapeutic benefit in
two months to initial valproic acid 1000mg/day,
quetiapine 800mg/day, lorazepam 5mg/day, and
additional risperidone 6mg/day, haloperidol
20mg/day, and chlorpromazine 100mg/day; all drugs
were discontinued except risperidone and ECT was
begun upon approval by neurologists and
anesthesiologists. Bifrontal bilateral application started
with 40% electric dose, and was increased by 20% at
every session to reach at 160%. The initial YMRS
score of 30 prior to ECT became 22 after 6 sessions.
ECT was terminated at the eighth session, when
YMRS score reduced to 4 points. No adverse effects
except episodes of short-term amnesia was detected
during the ECT. The patient was followed up by
Clinical Global Impression-Severity of Illness (CGI-SI)
and Clinical Global Impression-General Improvement
(CGI-GI) scales. While CGI-SI decreased from 6 to 1,
CGI-GI score was 1. After 1 week of follow-up, the
patient was discharged with risperidone 6mg/day and
quetiapine 600mg/day. There was no new episode
after nine months of follow-up in our outpatient
setting.

**CASE 2**

O.C. was a 15-year-old girl, who left the school at
7th grade. While being followed up for a long while by
a university hospital with the diagnosis of mild mental
retardation and psychosis, she was referred to our
clinic because of the refusal to take food and fluid,
staying in the same position for a long time, severely
decreased speech, inactivity, repetitive aimless
movements with an onset of three weeks ago. Her
medical history showed special education for mental
retardation since her first year of education.
Additionally, she had complaints of self-talking,
imaginations, and introversion for 2 years. Upon
diagnosis of schizophrenia, she was using olanzapine
20mg/day, which was titrated to 30mg about one
month ago due to increased complaints. She did not
respond to the questions during her mental state
examination, where it was observed that she sat on
the chair while bent forward with no movement
except continuous head shaking. Her affect was
limited and psychomotor activity was almost absent.
The content of the thought could not be evaluated.
Family history showed a consanguineous marriage in
her parents (son and daughter of brothers), where
other siblings also had mental retardation. The patient
was interned to our clinic with the diagnosis of
catatonia. Laboratory tests and neurological
examination showed no abnormal finding, olanzapine
treatment was rapidly tapered with starting of
lorazepam 7.5mg/day. After 1 week of no
improvement, ECT was initiated after anesthesia and
neurology consultation. Bifrontal bilateral application
started with 40% electric dose, and was raised by 20%
at every session to reach at 160%. At the end of third
session where the dose was 80%, oral food intake was
restored with accompanying disappearance of typical
posture and stupor. ECT was continued for 12 sessions
due to persistence of residual symptoms of
schizophrenia. The dose was escalated up to 180%.
No adverse effect was seen during ECT. The CGI-SI
score declined from 7 to 5 during the treatment. The
CGI-GI score was 3. As no additional benefit was
observed at the twelfth session, the patient was
discharged with quetiapine 600mg/day and
aripiprazole 30mg/day to be followed up in outpatient
setting.

**CASE 3**

M.G. was a 15-year-old male patient. After
hospitalization in a university hospital twice in last
three months, he was referred us with the diagnosis of
depression with psychotic features due to
unhappiness, anhedonia, aggressiveness, somatic
complaints, fears, refractory suicidal thoughts, and
aggressive behaviors during hospitalization. Mental state examination showed the mood to be depressive and the affect be limited. The amount of speech was reduced, giving short answers to questions. Psychomotor activity was decreased. The content of the thought revealed delusions of harm from his family. He was diagnosed with major depression with psychotic features. Due to no response to previously started fluoxetine 60mg/day, alprazolam 2mg/day, sertraline 150mg/day, risperidone 1mg/day, aripiprazole 10mg/day, and 13 sessions of transcranial magnetic stimulation, the patient was switched into venlafaxine 225mg and aripiprazole 20mg. One-month course of this regimen provided no improvement with maintenance of suicidal thoughts and delusions. Neurology and anesthesia consultations approved initiation of ECT. Bifrontal bilateral application started with 40% electric dose, and was escalated by 20% at every session to reach at 160%. The Beck depression scale score, which was 32 before ECT, dropped to 16 by repeated ECT applications. No adverse effect except headache during ECT was described. The CGI-SI score decreased from 6 to 3. The CGI-GI score was 2. Upon regression of suicidal thoughts and delusions, the patient was discharged with partial remission at a dose of 225mg/day of venlafaxine.

**DISCUSSION**

Although ECT has been shown to be efficacious and safe in clinical situations such as major depression, bipolar disorder, and schizophrenia in adolescents (6,7), it was less frequently preferred in this population compared to that in adults in western societies due to several factors such as concerns regarding potential adverse effects on developing brain, lack of experience, and families' negative perceptions toward ECT. On the other hand, considering the warning by U.S. Food and Drug Administration regarding increased suicidal thoughts and behavior among adolescents due to antidepressants (8,9), and serious adverse effects of psychotropic drugs such as tardive dyskinesia, weight gain, elevated blood glucose and lipids especially in long-term use (10), ECT seems to be a cheap, practical, effective and safe treatment alternative for the adolescent patients. The unfavorable influence of long-term hospitalization on the social and educational life of a child plus the additional burden on the public costs further indicated the importance of ECT utilization in cases refractory to psychopharmacological treatment. In fact, a review in 2013 including 39 studies reported ECT as an efficacious treatment option with low and mild adverse effects for adolescents with various psychiatric disorders (5). The American Academy of Child and Adolescent Psychiatry handbook on the use of ECT in adolescents published in 2004, recommended ECT in appropriate patients considering the diagnosis, severity of symptoms, and unresponsiveness to pharmacotherapy criteria (7). The criteria include (1) the presence of a disease where ECT is indicated (such as major depression, mania, schizophrenia, etc.); (2) permanent and disabling nature of the disease symptoms; and (3) unresponsiveness to two different psychotropic medications. Furthermore, ECT is recommended to be considered early if (1) the patient does not receive appropriate pharmacotherapy due to side effects; (2) the patient is too inactive to take the medication, or (3) waiting for the time required for the response to pharmacotherapy is likely to be life-threatening for the patient.

Our case series showed that these cases met the criteria of the diagnosis, symptom severity, and psychopharmacologic unresponsiveness, where ECT provided marked benefit and few adverse effects in all three patients, consistent with the literature.

In conclusion, ECT is an effective treatment with a low side effect profile in medical refractory cases. If resistance to other modalities exists in adolescent patients, ECT should be considered and applied; and if not applicable, the patient should be referred to the centers where it is possible. In addition, we believe that such efforts that help clinicians increase their knowledge and experience on ECT and promote the conditions to implement ECT in child and adolescent psychiatry clinics will be useful.
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REFERENCES


