

# Electroconvulsive Therapy Practice in Ukraine

*Aleksey Olekseev, MD,\* Gabor S. Ungvari, MD, PhD,†‡ and Gábor Gazdag, MD, PhD§||*

**Background:** Patterns of electroconvulsive therapy (ECT) use have recently been extensively surveyed in Central-Eastern Europe. However, data from post-USSR countries are limited.

**Objective:** This study aimed to survey ECT practice in Ukraine.

**Methods:** All psychiatric services in Ukraine were identified and contacted to obtain information on the use of ECT in 2011 using a 22-item questionnaire.

**Results:** Of the 146 psychiatric inpatient facilities, only 5 confirmed that they performed ECT in 2011. Three other services also performed ECT but refused to provide further information. In the only private psychiatric institute where ECT was offered, 14.28% of inpatients received this treatment in 2011, whereas the corresponding figure in the 6 public psychiatric facilities was a mere 0.4%. Three centers used unmodified ECT, and only 2 centers had equipment that monitored electroencephalogram. In 7 services, in line with international recommendations, affective disorders were the first indications for ECT in Ukraine, whereas uncommon indications such as anorexia or Parkinsonism were also reported.

**Conclusions:** This was the first survey of ECT practice conducted in Ukraine. The provision of ECT in only 8 centers is clearly insufficient for a large country such as Ukraine, which is reflected in the low rate of inpatients treated with ECT. The very limited availability of this effective treatment modality should be addressed by the Ukrainian health authorities.

**Key Words:** electroconvulsive therapy, Ukraine, unmodified ECT, private versus public psychiatric facilities

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In recent decades, patterns of electroconvulsive therapy (ECT) use have been extensively surveyed in Central-Eastern Europe. The first report from this region dates back to 1992, based on a statewide collection of data in the Czech Republic from 1981 to 1989.<sup>1</sup> The main indication for ECT was schizophrenia, and the utilization rate was 5.5% of all psychiatric inpatients. A questionnaire survey was conducted in Hungary in 2002<sup>2</sup> and found an ECT utilization rate as low as 0.31/10,000 inhabitants. The main indication for ECT was again schizophrenia. A survey conducted in the Russian Federation in 2003 to 2004 also found a low utilization rate (0.54/10,000).<sup>3</sup> However, a very low (only 7.9%) response rate greatly compromised this survey's results. A nationwide survey in Poland showed a utilization rate similar

to that in Hungary, with the main indication being affective disorders.<sup>4</sup> A Slovakian survey<sup>5</sup> found an approximately 25-times higher utilization rate than in Hungary or Poland. This result is close to figures reported from Norway.<sup>6</sup> Similar to Western European surveys, affective disorders were the first indication in Slovakia.<sup>5</sup> Low utilization rates were also reported in Bulgaria.<sup>7</sup> Apart from the results of the previously mentioned Russian survey<sup>3</sup> and another from Chuvashia,<sup>8</sup> no data are available from other post-USSR countries.

With the dissolution of the Soviet Union, Ukraine (population, 45.5 million; territory, 603,549 km<sup>2</sup>) became independent in 1991. Yet even after more than 20 years of independence, the country's health care policy and standards of medical practice are similar to those during the Soviet era, much like other post-USSR countries.

The aim of this study was to explore the characteristics of ECT practice in Ukraine, including issues of technique and the availability of ECT in psychiatric services.

## METHODS

First, the official government website (<http://mozdocs.kiev.ua>) was used to identify all psychiatric services available in Ukraine. In 2011, there were 146 psychiatric facilities providing inpatient care, including university departments, general hospital psychiatric wards, and standalone hospitals. The principal author (A.O.) contacted these facilities by telephone to ask for information on the use of ECT in 2011. Where ECT had been used, a 22-item questionnaire was sent to the facility to obtain detailed information about the practice (see Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/YCT/xxx>).

## RESULTS

The response rate was 100% as all psychiatric services replied either by telephone or mail. Of the 146 psychiatric inpatient facilities, only 5 confirmed that they performed ECT in 2011; they all returned the study questionnaire. Three further services, Psychiatric Hospital No. 1 in Kiev and the psychiatric hospitals in Simferopol and Dnepropetrovsk, also provided ECT but refused to give further information about their practice. Information from secondary sources suggested that the first 2 services used modified ECT, whereas the third practiced unmodified ECT. The characteristics of ECT practice in Ukraine in 2011 are summarized in Tables 1 and 2.

## DISCUSSION

The present ECT survey was the first ever in Ukraine. Only 8 (5.47%) of the 146 psychiatric services provided ECT in Ukraine in 2011. For such a big country, 8 ECT services are clearly insufficient. Patients in serious condition often had to be transferred hundreds of kilometers to receive ECT, incurring extra time and costs apart from the added substantial psychological burden. Furthermore, in real medical or psychiatric emergencies presenting as life-threatening situations, transfer may not be an option. We feel that these issues should be addressed urgently by the Ukrainian health authorities.

The percentage of facilities offering ECT is also extremely low in comparison with Western and Central European provisions

From the \*Private Psychiatric Clinic, Odessa, Ukraine; †University of Notre Dame/Marian Centre; ‡School of Psychiatry and Clinical Neurosciences, University of Western Australia, Perth, Australia; §Centre for Psychiatry and Addiction Medicine, Szent István and Szent László Hospitals; and ||Department of Psychiatry and Psychotherapy, Faculty of Medicine, Semmelweis University, Budapest, Hungary.

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Reprints: Gábor Gazdag, MD, PhD, Centre for Psychiatry and Addiction Medicine, Szent István and Szent László Hospitals, Gyáli út 17-19, 1097 Budapest, Hungary (e-mail: [gazdag@lamb.hu](mailto:gazdag@lamb.hu)).

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**TABLE 1. ECT Practice in Ukraine, 2011**

ECT Center	Chernigov, Regional Psychiatric Hospital	Lvov, Regional Psychiatric Hospital	Smela, Cherkaska obl. Regional Psychiatric Hospital No. 1	Odessa Private Psychiatric Institute	Lugansk, Regional Psychiatric Hospital
No. treated patients in 2011	7530	8685	6050	427	4219
No. patients treated with ECT	5 (0.06%)	24 (0.27%)	7 (0.11%)	61 (14.28%)	14 (0.33%)
Informed consent	Only general consent to psychiatric treatment	Separate consent to ECT	Separate consent to ECT	Separate consent to ECT	Separate consent to ECT
ECT in older than 70 y	No	Yes	Yes	Yes	No
ECT in younger than 18 y	No	No	No	Yes	No
ECT in pregnancy	No	No	No	Yes	No
ECT in breastfeeding period	No	Yes	No	Yes	No
Frequency of ECT sessions per week	3	4 or more	3	2-3	2
Mean no. sessions in a course	6	6	6	8	8
Maximum no. sessions in a course	10	15	10	23	15
Maintenance ECT	No	No	Yes	Yes	No
ECT device	Niviquire-VR	Elikon-01	EKT-01 Filat	Niviquire-VR	EKT-01 Filat
Electrode placement	Bitemporal	Bitemporal	Bitemporal	Bitemporal, LART, unilateral	Bitemporal
Anesthetic agent used	Thiopental	Thiopental, propofol	None	Thiopental, propofol, ketamine, sevoflurane, nitrous oxide	None
Muscle relaxant	Succinylcholine	Succinylcholine	None	Succinylcholine	None
Accepted minimal effective seizure duration	20-s motor seizure	30-s motor seizure	10-s motor seizure	30-s motor seizure or 35 on EEG	10-s motor seizure
Seizure threshold titration	No	No	No	Yes	Yes
Method for setting stimulation dose	Fixed dose	According to a formula	Fixed dose	According to an age-dependent formula	According to individual seizure threshold
Pretreatment evaluation	Physical examination including neurology and ophthalmology review, EEG	Physical examination including neurology and ophthalmology review, EEG, EEG	Physical examination including neurology, ophthalmology, EEG	Physical examination including cardiology, neurology and ophthalmology review, ECG, EEG	Physical examination including gynecology, dentistry, neurology and ophthalmology review, ECG, EEG
Premedication	Diphenhydramine	Benzodiazepines, diphenhydramine	Benzodiazepines, diphenhydramine	Ondansetron, metoclopramide	Benzodiazepines, diphenhydramine

Monitoring	Blood pressure, pulse rate, 2-channel ECG, 2 channel EEG	Blood pressure, pulse rate, 6-channel ECG, SpO <sub>2</sub>	Blood pressure, pulse rate	Blood pressure, pulse rate, 2 channels ECG, 2 channels EEG, SpO <sub>2</sub> , capnography, gas monitoring (for gas narcosis)	Blood pressure, pulse rate,
Diagnostic distribution of ECT-treated patients	Schizoaffective-depressed, 2 Schizophrenia, paranoid type, 3	Depression, 7 Bipolar-depressed, 4 Schizoaffective-depressed, 4	Depression, 2 Schizoaffective-depressed, 3 Schizoaffective psychotic episode, 1 Schizophrenia, 1	Unipolar-depression, 15 Bipolar-depressed, 20 Bipolar-manic, 3	Bipolar-depressed, 2 Schizoaffective-depressed, 2 Schizophrenia paranoid type, 4 Catatonia, 4 Anorexia, 2
		Catatonia, 11 Anorexia, 1 Parkinsonism, 1		Schizoaffective-depressed, 10 Schizoaffective-manic, 1 Organic affective disorder-depressed, 3 Catatonia, 2 Anorexia, 2 Parkinsonism, 2 NMS, 2 OCD, 1	

being between 22% and 100%<sup>9</sup> in the countries where ECT is offered at all. We hypothesize that the remnants of the Soviet-era secrecy and the negative image of ECT explains the fact that 3 (37.5%) of the 8 centers refused to give any information about their practice. Similar negative attitude, not only among lay persons but also among professionals, were found in another post-communist country.<sup>10</sup> Similarly low ECT service rates were reported only in Bulgaria, where just 4 ECT centers were identified, a mere 12% of all psychiatric services in 2010.<sup>7</sup> While 3 of the Bulgarian ECT centers were located in the capital, the Ukrainian ECT centers, each located in a different city, provide better accessibility to treatment for the population.

In the public psychiatric facilities, less than 0.4% of inpatients received ECT in Ukraine in 2011, indicating that public psychiatric hospitals underutilized ECT. In contrast, 14.3% of all inpatients at the private Odessa Institute underwent ECT, perhaps because the facility is dedicated to difficult patients. Private facilities use more ECT than public services in several developed countries.<sup>11-13</sup> The possible reason could be that, with proper indication, ECT is more effective than psychotropic drugs and shortens the length of stay in hospital, which is a major concern in private facilities.

Except for the Chernigov Regional Psychiatric Hospital, affective disorders were the first indication for ECT in Ukraine. This practice is in line with international recommendations.<sup>14,15</sup> Catatonia was the second indication for ECT in the Lvov Regional Psychiatric Hospital, and was an indication in Odessa and Lugansk. A rather unusual indication for ECT in Ukraine was anorexia nervosa. Although this indication is not supported by any of the international recommendations devised on sound scientific evidence,<sup>14,15</sup> a few earlier case reports suggest the successful application of ECT in anorexia nervosa.<sup>16,17</sup> Unlike in some post-USSR countries, including the Russian Federation,<sup>3</sup> addiction disorders are not indications for ECT in Ukraine.

Electroconvulsive therapy is a treatment option when pharmacotherapy has an increased risk.<sup>13</sup> This is typically the case in pregnant women<sup>18</sup> and elderly people with comorbid medical conditions.<sup>19</sup> Regrettably, only 3 Ukrainian centers offered ECT for the elderly in 2011, and a single center offered it for pregnant women. This very limited accessibility of ECT for these special patient populations is another cause for concern because it violates these patients' right to have access to effective and safe treatment.

The lack of a national ECT protocol is reflected in the heterogeneity of pretreatment evaluation methods, premedication, and technical issues of administration. The use of benzodiazepine premedication dates back to the Soviet era, when it was widespread. Due to the lack of modern ECT devices, electroencephalographic (EEG) monitoring was available only in 2 facilities in 2011. Two centers were still using outmoded, Ukrainian-made sine-wave machines, and 2 centers have had modern Indian-made square-wave devices with EEG/electrocardiographic (ECG) monitoring and PC connecting modules. These machines could also generate ultrabrief impulses. Of the 3 different ECT machines, 2, the new Ukrainian and the Indian-made machines, have been certificated for use by the Ukrainian health authorities, whereas the old Ukrainian-made machine's certification procedure dates back to the Soviet era.

In addition to the lack of national guidelines for ECT, another reason for the heterogeneous and frequently questionable clinical practice in Ukraine is the lack of centrally organized ECT training or courses. Electroconvulsive therapy is not obligatory in the residents' training either, and only a few universities integrated ECT in their curricula. In Ukraine, specialist psychiatrists are authorized to perform ECT without any preexisting

**TABLE 2.** Parameters of ECT Machines Used in Ukraine, 2011

ECT Machine	Niviqure-VR	Elikon-01	EKT-01 Filat
Location of manufacturing	India; certified in Ukraine	USSR (Ukraine)	USSR (Ukraine)
Waveform	Bidirectional square wave	Unidirectional square waves	Sine wave
Pulse amplitude, mA	200–1000	550–850	
Pulse width, ms	0.5–2	1.5	
Frequency, PPS	50–200	27 or 40	
Duration, s	0.1–20	Max. 17.3	0.1–1.5
Charge, mC	60–540	30–330	
Voltage, V			60–150

or ongoing training. Interested clinicians could get useful information from 2 recently published Russian-language handbooks.<sup>20,21</sup>

A further critical point about Ukrainian ECT practice is that unmodified ECT was used in 3 of the 8 centers. Although this is an entirely unacceptable practice in the developed world, its use is commonly accounted for by the shortage of anesthesiologists, difficulty in accessing anesthetic agents due to their strict official control, and the lack of separate financing for ECT. Similar reasons have been used to justify unmodified ECT in Nigeria<sup>22</sup> India,<sup>23</sup> and Thailand.<sup>24</sup>

In our opinion, the first task in facilitating the development of ECT practice in Ukraine should be the publication of a national guideline. This would be the first step toward the elimination of unmodified ECT from clinical practice. The guideline could also be a foundational document in the education of medical students and trainee psychiatrists. Mental health professionals should fight the still widely held view that ECT is an obsolete, punitive treatment method. Further, separate financing would be another vitally important factor to render ECT a viable option in clinical practice.

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