

# Elektrokonvülsif Tedavide Anestezi Uygulamaları

*Dr. Demet Coşkun, Dr. Azer İlbengü Kaptan*

**E**lektrokonvülsif tedavi (EKT) beyin dokusunu elektrik akımıyla uyararak yaygın nöbetler oluşturma esasına dayanan psikiyatrik bir tedavi yöntemidir (1). 19. yüzyıl sonlarında şizofreni ile epilepsinin birlikte bulunduğu hastalarda spontan konvülsiyon sonrası şizofreni belirtilerinin azaldığı gözlemlenmiş, bu durum araştırmacıların yapay konvülsiyon oluşturmaya yönelmesini sağlamıştır. 1938 yılında bir epileptik nöbeti provoke etmek için elektrik akımı kullanılmış ve günümüzde uygulanan EKT'nin temelleri atılmıştır. Elektrokonvülsif tedavi zamanla; akut ve ilaç tedavisine dirençli kronik depresyon tedavisi, mani tedavisi, duyu bozukluğu, intihara meyil, delusyonel semptomlar, vejetatif fonksiyon bozuklukları, bitkinlik ve katonik semptomlarla birlikte olan şizofrenik hastaların tedavisinde kullanılmaya başlamıştır (2). Çocuk yaş grubundaki hastalarda ise refrakter status epileptikus, EKT endikasyonlarına eklenmiştir (3). Günümüzde EKT'nin en başta gelen endikasyonu tedaviye dirençli majör depresif bozukluktur. Bu tedavinin depresif semptomları hangi mekanizma ile azalttığı açık olmasa da indüklenmiş nöbet süresinin uzamasının antidepresif etkinliğin artması ile ilişkili olabileceği ileri sürülmüştür (4) .

Elektrokonvülsif tedavi cihazı dış kaynaktan aldığı gücü, bilateral ya da unilateral hemisferde belirli bölgelere yerleştirilmiş elektrotlarla, beyin dokusuna aktarır (1). Elektrot yerleşimi, uyarının şiddeti ve oluşturulan nöbetin süresi EKT'nin hem etkinliğinde hem de güvenliğinde büyük önem taşır. Elektrokonvülsif tedavi ile indüklenen tonik klonik nöbet; 10-15 sn terapötik tonik faz ve bunu takip ederek 30-50 sn süren klonik fazdan oluşur (5). Hedeflenen nöbet aktivitesi süresi 20 sn'den uzun olmak şartıyla, yaklaşık olarak 25-60 sn kadardır (6). Daha uzun veya kısa süren nöbet aktivitelerinde uyarının şiddeti ile anestezi ajanının dozu ayarlamalıdır. Haftada ortalama 3 kere olmak üzere hastanın tedaviye yanıtına göre

## Kaynaklar

1. Ding Z, White PF: Anesthesia for electroconvulsive therapy. *Anesthesia & Analgesia*. 2002; 94:1351-64.
2. Faedda GL, Becker I, Baroni A, et al: The origins of electroconvulsive therapy Prof. Bini's first report on ECT. *Journal of affective disorders*. 2010; 120:12-15.
3. Franklin AD, Sobey JH, Stickles ET: Anesthetic considerations for pediatric electroconvulsive therapy, *Pediatric Anesthesia*. 2017; 27.5: 471-479.
4. Nobler MS, Sackeim HA, Solomou M, et al: EEG manifestations during ECT effects of electrode placement and stimulus intensity. *Biological Psychiatry*. 1993; 34:321-30.
5. Sackeim HA, Prudic J, Devanand DP, et al: Effects of stimulus intensity and electrode placement on the efficacy and cognitive effects of electroconvulsive therapy. *New England Journal of Medicine*. 1993; 328:839-846.
6. Gaines GY, Rees DI: Electroconvulsive therapy and anesthetic considerations. *Anesthesia & Analgesia*. 1986; 65:1345-56.
7. Weiner R: American Psychiatric Association committee on electroconvulsive therapy. *The practice of electroconvulsive therapy: recommendations for treatment, training, and privileging 2001*.
8. Segman R, Gorfine M, Lerer B, Shapira B: Onset and time course of antidepressant action psychopharmacological implications of a controlled trial of electroconvulsive therapy. *Psychopharmacology*. 1995; 119:440-8.
9. Andrade C, Shah N, Tharyan P, et al: Position statement and guidelines on unmodified electroconvulsive therapy. *Indian journal of psychiatry*. 2012; 54:119.
10. Saito S, Miyoshi S, Yoshikawa D, et al: Regional cerebral oxygen saturation during electroconvulsive therapy: monitoring by near-infrared spectrophotometry. *Anesthesia & Analgesia*. 1996; 83:726-30.
11. Weinger MB, Partridge BL, Hauger R, Mirow A, Brown M: Prevention of the cardiovascular and neuroendocrine response to electroconvulsive therapy: II. Effects of pretreatment regimens on catecholamines, ACTH, vasopressin, and cortisol. *Anesthesia and Analgesia*. 1991; 73:563-569.
12. Castelli I, Steiner L, Kaufmann M, et al: Comparative effects of esmolol and labetalol to attenuate hyperdynamic states after electroconvulsive therapy. *Anesthesia & Analgesia*. 1995; 80:557-61.
13. Wells DG, Davies GG: Hemodynamic changes associated with electroconvulsive therapy. *Anesthesia & Analgesia*. 1987; 66:1193-5.
14. Saito, Shigeru: Anesthesia management for electroconvulsive therapy hemodynamic and respiratory management. *Journal of anesthesia*. 2005; 19.2:142-149.
15. Simpson K, Lynch L: Anaesthesia and electroconvulsive therapy (ECT). *Anaesthesia*. 1998; 53:615-7.
16. Wojdacz R, Łukasz Ś, Antosik-Wójcińska A: Comparison of the effect of intravenous anesthetics used for anesthesia during electroconvulsive therapy on the hemodynamic safety and the course of ECT. *Psychiatria polska*. 2017; 51:1039-1058.
17. Folk JW, Kellner CH, Beale MD, Conroy JM, Duc TA: Anesthesia for electroconvulsive therapy: a review. *The journal of ECT*. 2000; 16:157-70.
18. Lihua P, Su M, KeW, Ziemann-Gimmel P: Different regimens of intravenous sedatives or hypnotics for electroconvulsive therapy (ECT) in adult patients with depression. *Cochrane Database of Systematic Reviews*, 2014

19. Patel AS, Gorst-Unsworth C, Venn RM, Kelley K, Jacob Y: Anesthesia and electroconvulsive therapy: a retrospective study comparing etomidate and propofol. *The journal of ECT.* 2006; 22:179-83.
20. Rosa MA, Rosa MO, Marcolin MA, Fregni F: Cardiovascular effects of anesthesia in ECT: a randomized, double-blind comparison of etomidate, propofol, and thiopental. *The journal of ECT.* 2007; 23:68.
21. Boey W, Lai F: Comparison of propofol and thiopentone as anaesthetic agents for electroconvulsive therapy. *Anaesthesia.* 1990; 45:623-8.
22. Okamoto N, Nakai T, Sakamoto K, et al: Rapid antidepressant effect of ketamine anesthesia during electroconvulsive therapy of treatment-resistant depression: comparing ketamine and propofol anesthesia. *The journal of ECT.* 2010; 26:223-227.
23. Yalcin S, Aydoğan H, Selek S, et al: Ketofol in electroconvulsive therapy anesthesia: two stones for one bird. *Journal of anaesthesia.* 2012; 26:562-7.
24. Stripp TK, Jorgensen MB, Olsen NV: Anaesthesia for electroconvulsive therapy-new tricks for old drugs a systematic review. *Acta Neuropsychiatrica.* 2017; 1-9.
25. Wajima Z, Shiga T, Yoshikawa T, Ogura A: Propofol alone, sevoflurane alone, and combined propofol-sevoflurane anaesthesia in electroconvulsive therapy. *Anaesthesia and intensive care.* 2003; 31:396.
26. Loughnan T, McKenzie G, Leong S: Sevoflurane versus propofol for induction of anaesthesia for electroconvulsive therapy: a randomized crossover trial. *Anaesthesia and intensive care.* 2004;32:236.
27. Gálvez V, Loo CK, Alonzo A, et al: Do benzodiazepines moderate the effectiveness of bitemporal electroconvulsive therapy in major depression?. *Journal of affective disorders.* 2013; 150:686-690.
28. Shah PJ, Dubey KP, Watti C, Lalwani J: Effectiveness of thiopentone, propofol and midazolam as an ideal intravenous anaesthetic agent for modified electroconvulsive therapy: A comparative study. *Indian journal of anaesthesia.* 2010; 54:296.
29. Sannakki D, Dalvi NP, Sannakki S, et al: Effectiveness of dexmedetomidine as pre-medication prior to electroconvulsive therapy, a Randomized controlled cross over study, *Indian journal of psychiatry.* 2017; 59.3:370.
30. Taylor S: Electroconvulsive therapy: a review of history, patient selection, technique, and medication management. *Southern Medical Journal.* 2007; 100:494-9.
31. Pandya M, Pozuelo L, Malone D: Electroconvulsive therapy what the internist needs to know. *Cleveland Clinic journal of medicine.* 2007; 74:679-85.
32. Donati F, Bevan DR: Neuromuscular Blocking Agents. In Barash PG. *Clinical anesthesia: Lippincott Williams & Wilkins,* pp 498-530, 2009
33. Lui PW, Ma JY, Chan KK: Modification of tonic-clonic convulsions by atracurium in multiple-monitored electroconvulsive therapy. *Journal of clinical anesthesia.* 1993; 5:16-21.
34. Birkenhäger TK, Pluijms EM, Groenland TH, van den Broek WW: Severe bradycardia after anesthesia before electroconvulsive therapy. *The journal of ECT.* 2020; 26:53-4.
35. Janis K, Hess J, Fabian JA, Gillis M: Substitution of mivacurium for succinylcholine for ECT in elderly patients. *Canadian journal of anaesthesia.* 1995; 42:612-3.
36. Turkkal DC, Gokmen N, Yıldız A, et al: A cross-over, post-electroconvulsive therapy comparison of clinical recovery from rocuronium versus succinylcholine. *Journal of clinical anesthesia.* 2008; 20:589-93.

37. Mirzakhani H, Welch CA, Eikermann M, Nozari A: Neuromuscular blocking agents for electroconvulsive therapy: a systematic review. *Acta anaesthesiologica Scandinavica*. 2012; 56:3-16.
38. Ogunnaike BO, Whitten CW: Gastrointestinal disorders and anesthesia. In Barash PG. *Clinical anesthesia: Lippincott Williams & Wilkins*, pp 1221-1230, 2009
39. McCormick A, Saunders D: Oxygen saturation of patients recovering from electroconvulsive therapy. *Anaesthesia*. 1996; 51:702-4.
40. Anderson EL, Irving M: ECT in pregnancy: a review of the literature from 1941 to 2007. *Psychosomatic medicine*. 2009;71.2:235-242.
41. Lovas A, Almos PZ, Peto Z, Must A, Horváth S: Anesthesia for electroconvulsive therapy in early pregnancy. *The journal of ECT*. 2011; 27:328-330.
42. Wisner KL, Gelenberg AJ, Leonard H, Zarin D, Frank E: Pharmacologic treatment of depression during pregnancy. *Jama*. 1999; 282,1264-1269.