

ZEHİRLENMELERDE EKSTRAKORPOREAL TEDAVİ YAKLAŞIMLARI

Gülsüm ÇALIŞKAN GÜNAY¹

Giriş

Ekstrakorporeal tedaviler (EKT), endojen veya ekzojen toksinlerin vücuttan uzaklaştırılması esasındaki bir tedavi yöntemidir.(1) Konvansiyonel tedavilere cevap vermeyen uygun intoksikasyon vakalarında mortalite ve morbiditenin önlenmesinde önemli rol alır.EKT uygulamalarına molekül ağırlığı, endojen klirenzi ve dağlılm hacmi düşük olan ve proteine az bağlanan toksinler daha uygundur.

EKT yöntemleri invaziv işlemleridir ve komplikasyon riski vardır. EKT uygulanması düşünülen vakalarda yarar ve risk oranı değerlendirilerek uygulama kararı verilmelidir. Hasta için en uygun EKT yöntemi maruz kalınan toksinin özellikleri, hastanın medikal öykü ve klinik durumu dikkate alınarak belirlenir. Olası komplikasyonları en aza indirmek için vakanın EKT'ye uygunluk kararının doğru verilmesi ve uygulanacak yöntemin doğru seçilmesi gereklidir. Tedaviyi uygulayacak sağlık personelinin EKT yöntemleri ve toksinle ilgili yeterli bilgi sahibi olması tedavi başarısını artıracak öğelerdir.

Hastanın EKT İhtiyacının Değerlendirilmesi;

Zehirlenme hastasında ilk olarak havayolu, solunum ve dolaşım sistemi değerlendirilir. Sonrasında aktif kömür gibi gastrointestinal dekontaminasyon ve üriner alkalinizasyon gibi eliminasyonu artırma yöntemlerine ihtiyacı belirlenir. Eş zamanlı olarak semptomatik tedavi, volüm replasmanı, aritmi gibi komplikasyonların tedavisi hastanın ihtiyacına göre eklenebilir. Hasta hızlı şekilde stabil hale getirilip EKT ihtiyacı ve uygunluğu açısından değerlendirilmelidir.

¹ Uzm. Dr. Gülsüm ÇALIŞKAN GÜNAY, Çam ve Sakura Şehir Hastanesi, Acil Servis drgulsumcaliskan@gmail.com

KAYNAKLAR

1. Ouellet, G., Bouchard, J., Ghannoum, M., & Decker, B. S. (2014, July). Available extracorporeal treatments for poisoning: overview and limitations. In *Seminars in dialysis* (Vol. 27, No. 4, pp. 342-349).
2. Ghannoum, M., Hoffman, R. S., Gosselin, S., Nolin, T. D., Lavergne, V., & Roberts, D. M. (2018). Use of extracorporeal treatments in the management of poisonings. *Kidney international*, 94(4), 682-688.
3. Ghannoum, M., Roberts, D. M., Hoffman, R. S., Ouellet, G., Roy, L., Decker, B. S., & Bouchard, J. (2014, July). A stepwise approach for the management of poisoning with extracorporeal treatments. In *Seminars in Dialysis* (Vol. 27, No. 4, pp. 362-370).
4. Martín-Reyes, G., Toledo-Rojas, R., Torres-de Rueda, Á., Sola-Moyano, E., Blanca-Martos, L., Fuentes-Sánchez, L., ... & García-González, I. (2012). Haemodialysis using high cut-off dialysers for treating acute renal failure in multiple myeloma. *Nefrología (English Edition)*, 32(1), 35-43.
5. Ibrahim, R. B., Liu, C., Cronin, S. M., Murphy, B. C., Cha, R., Swerdlow, P., & Edwards, D. J. (2007). Drug removal by plasmapheresis: an evidence-based review. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, 27(11), 1529-1549.
6. Matzke, G. R. (2002). Status of hemodialysis of drugs in 2002. *Journal of Pharmacy Practice*, 15(5), 405-418.
7. De Pont, A. C. J. (2007). Extracorporeal treatment of intoxications. *Current opinion in critical care*, 13(6), 668-673.
8. Krisper, P., & Stauber, R. E. (2007). Technology Insight: artificial extracorporeal liver support—how does Prometheus® compare with MARS®?. *Nature Clinical Practice Nephrology*, 3(5), 267-276.
9. Kawasaki, C. I., Nishi, R., Uekihara, S., Hayano, S., Kragh-Hansen, U., & Otagiri, M. (2005). How tightly can a drug be bound to a protein and still be removable by charcoal hemoperfusion in overdose cases?. *Clinical Toxicology*, 43(2), 95-99.
10. Fertel, B. S., Nelson, L. S., & Goldfarb, D. S. (2010). Extracorporeal removal techniques for the poisoned patient: a review for the intensivist. *Journal of intensive care medicine*, 25(3), 139-148.
11. Pond, S. M. (1991). Extracorporeal techniques in the treatment of poisoned patients. *Medical journal of Australia*, 154(9), 617-622.
12. Holubek, W. J., Hoffman, R. S., Goldfarb, D. S., & Nelson, L. S. (2008). Use of hemodialysis and hemoperfusion in poisoned patients. *Kidney international*, 74(10), 1327-1334.
13. Shannon, M. W. (1997). Comparative efficacy of hemodialysis and hemoperfusion in severe theophylline intoxication. *Academic emergency medicine*, 4(7), 674-678.
14. Tyagi, P. K., Winchester, J. F., & Feinfeld, D. A. (2008). Extracorporeal removal of

- toxins. *Kidney international*, 74(10), 1231-1233.
- 15. Ward, R. A., SCHMIDT, B., Hullin, J., HILLEBRAND, G. F., & Samtleben, W. (2000). A comparison of on-line hemodiafiltration and high-flux hemodialysis: a prospective clinical study. *Journal of the American Society of Nephrology*, 11(12), 2344-2350.
 - 16. Yamashita, A. C. (2007). Mechanisms of solute and fluid removal in hemodiafiltration. In *Hemodiafiltration* (Vol. 158, pp. 50-56). Karger Publishers.
 - 17. Bailey, A. R., Sathianathan, V. J., Chiew, A. L., Paterson, A. D., Chan, B. S., & Arora, S. (2011). Comparison of intermittent haemodialysis, prolonged intermittent renal replacement therapy and continuous renal replacement haemofiltration for lithium toxicity: a case report. *Critical Care and Resuscitation*, 13(2), 120.
 - 18. Calello, D. P., Liu, K. D., Wiegand, T. J., Roberts, D. M., Lavergne, V., Gosselin, S., ... & Ghannoum, M. (2015). Extracorporeal treatment for metformin poisoning: systematic review and recommendations from the Extracorporeal Treatments in Poisoning Workgroup. *Critical care medicine*, 43(8), 1716-1730.
 - 19. Roberts, D. M., Yates, C., Megarbane, B., Winchester, J. F., Maclare, R., Gosselin, S., ... & Ghannoum, M. (2015). Recommendations for the role of extracorporeal treatments in the management of acute methanol poisoning: a systematic review and consensus statement. *Critical care medicine*, 43(2), 461-472.
 - 20. Ghannoum, M., Bouchard, J., Nolin, T. D., Ouellet, G., & Roberts, D. M. (2014, July). Hemoperfusion for the treatment of poisoning: technology, determinants of poison clearance, and application in clinical practice. In *Seminars in dialysis* (Vol. 27, No. 4, pp. 350-361).
 - 21. RAHMAN, M. H., HAQQIE, S. S., & McGOLDRICK, M. D. (2006). Acute hemolysis with acute renal failure in a patient with valproic acid poisoning treated with charcoal hemoperfusion. *Hemodialysis International*, 10(3), 256-259.
 - 22. Szczepiorkowski, Z. M., Winters, J. L., Bandarenko, N., Kim, H. C., Linenberger, M. L., Marques, M. B., ... & Shaz, B. H. (2010). Apheresis Applications Committee of the American Society for Apheresis Guidelines on the use of therapeutic apheresis in clinical practice--evidence-based approach from the Apheresis Applications Committee of the American Society for Apheresis. *J Clin Apher*, 25(3), 83-177.
 - 23. Schutt, R. C., Ronco, C., & Rosner, M. H. (2012, March). The role of therapeutic plasma exchange in poisonings and intoxications. In *Seminars in dialysis* (Vol. 25, No. 2, pp. 201-206). Oxford, UK: Blackwell Publishing Ltd.
 - 24. Jander, S., Bischoff, J., & Woodcock, B. G. (2000). Plasmapheresis in the treatment of Amanita phalloides poisoning: II. A review and recommendations. *Therapeutic apheresis*, 4(4), 308-312.
 - 25. PIERGA, J. Y., BEUEZEBOC, P., Dorval, T., Palangie, T., & Pouillart, P. (1992). Favourable outcome after plasmapheresis for vincristine overdose. *Lancet (British edition)*, 340(8812).
 - 26. Schönermark, U., & Bosch, T. (2003). Vascular access for apheresis in intensive care patients. *Therapeutic Apheresis and Dialysis*, 7(2), 215-220.

27. Manikian, A., Stone, S., Hamilton, R., Foltin, G., Howland, M. A., & Hoffman, R. S. (2002). Exchange transfusion in severe infant salicylism. *Veterinary and human toxicology*, 44(4), 224-227.
28. SANCAK, R., KÜCÜKÖDÜK, S., TASDEMİR, H. A., & BELET, N. (1999). Exchange transfusion treatment in a newborn with phenobarbital intoxication. *Pediatric emergency care*, 15(4), 268-270.
29. Wittebole, X., & Hantson, P. (2011). Use of the molecular adsorbent recirculating system (MARS™) for the management of acute poisoning with or without liver failure. *Clinical Toxicology*, 49(9), 782-793.
30. Sen, S., Ratnaraj, N., Davies, N. A., Mookerjee, R. P., Cooper, C. E., Patsalos, P. N., ... & Jalan, R. (2003). Treatment of phenytoin toxicity by the molecular adsorbents recirculating system (MARS). *Epilepsia*, 44(2), 265-267.
31. Dichtwald, S., Dahan, E., Adi, N., Moses, A., & Sorkine, P. (2010). Molecular adsorbent recycling system therapy in the treatment of acute valproic acid intoxication. *The Israel Medical Association journal: IMAJ*, 12(5), 307-308.
32. Banner, W. (1996). Risks of extracorporeal membrane oxygenation: is there a role for use in the management of the acutely poisoned patient?. *Journal of Toxicology: Clinical Toxicology*, 34(4), 365-371.
33. Chyka, P. A. (1996). Benefits of extracorporeal membrane oxygenation for hydrocarbon pneumonitis. *Journal of Toxicology: Clinical Toxicology*, 34(4), 357-363.
34. De Lange, D. W., Sikma, M. A., & Meulenbelt, J. (2013). Extracorporeal membrane oxygenation in the treatment of poisoned patients. *Clinical Toxicology*, 51(5), 385-393.
35. Ghannoum, M., Bouchard, J., Nolin, T. D., Ouellet, G., & Roberts, D. M. (2014, July). Hemoperfusion for the treatment of poisoning: technology, determinants of poison clearance, and application in clinical practice. In *Seminars in dialysis* (Vol. 27, No. 4, pp. 350-361).