

# Nefronofitiz Tanılı Çocuk Olguda Renal Transplantasyon Cerrahisinde Preemptif Analjezi Amacıyla Quadratus Lumborum Plan Bloğu Uygulaması ve Anestezi Yönetimi

## 10. BÖLÜM

Fatma ACİL<sup>1</sup>

### ÖZET

Bu olgu sunumunda nefronofitiz nedeniyle son dönem böbrek yetmezliği gelişmiş olan ve renal transplantasyon planlanan 10 yaşındaki hastaya preemptif analjezi amacıyla quadratus lumborum plan bloğu uygulaması ve anestezi yönetimi paylaşılmaktadır. Genel anestezi uygulaması sonrası perioperatif opioid tüketimini en aza indirmek amacıyla ultrasonografi (USG) eşliğinde tip 2 quadratus lumborum plan bloğu (QLB-tip 2) uyguladık. Renal transplantasyon hastalarında opioid analjeziklerin uzamış etki ve aktif metabolitlerin oluşturabileceği komplikasyonlardan uzaklaşmak için uyguladığımız QLB-2 sayesinde hastamızın gerek cerrahi boyunca gerekse postoperatif dönemde ilave opioid analjezik ihtiyacı olmadı. Renal transplantasyon cerrahisinde QLB intravenöz (iv) opioid analjesine alternatif olarak kullanılabilirliğini gösterdik.

### OLGU

#### Preoperatif Dönem

Hastamız 10 yaşında erkek çocuktü ve yakınmaları 4-5 yaşlarında poliüri, polidipsi, enürezis nokturna şikayetleri ile başlamış. Bu dönemde yapılan kan, idrar ve USG inceleme sonucu hastaya polikistik böbrek hastalığı tanısı konmuş. Sonrasında yapılan böbrek biyopsisi ve genetik incelemede nefronofitiz tanısı konmuş. Aile öyküsünde anne, baba ve akrabalar sağlıklı iken her iki kardeşinde de nefronofitiz saptanmış. Nefronofitiz, otozomal resesif kalıtım gösteren ve son dönem böbrek yetmezliğine ilerleyen bir polikistik renal hastalık grubudur (1). Hastalıkla ilişkili olduğu saptanan 13'ün üzerinde gen gösterilmiştir (1). Nefronofitiz başlangıç yaşına göre infantil, jüvenil ve adolesan olmak üzere

<sup>1</sup> Uzm. Dr., SBÜ Diyarbakır Gazi Yaşargil Eğitim ve Araştırma Hastanesi, Anesteziyoloji ve Reanimasyon Kliniği, acilfatma@gmail.com



**Resim 1:** QLB blok USG görüntüleme resmi. QL: Quadratus lumborum kası, PM: Psoas major kası, TA: Transversus abdominis kası, IO: İnternal oblik kas; EO: Eksternal oblik kas

## KAYNAKLAR

1. Simms RJ, Eley L, Sayer JA. Nephronophthisis. *European Journal of Human Genetics* (2009) 17, 406–416; doi:10.1038/ejhg.2008.238.
2. Taktak A, Çakar N. Kalıtsal Kistik Böbrek Hastalıklarına Yaklaşım Approach to Inherited Cystic Kidney Disease. *J Curr Pediatr* 2015;13:40-5.
3. Srivastava S, Sayer JA. Nephronophthisis. *Journal of Pediatric Genetics* 3 (2014) 103–114. doi: 10.3233/PGE-14086
4. Srivastava S, Molinari E, Raman S, Many Genes—One Disease? Genetics of Nephronophthisis (NPHP) and NPHP-Associated Disorders. *Front Pediatr*. 2017;5:287. Review published: 05 January 2018. doi: 10.3389/fped.2017.00287
5. Simms RJ, Eley L, Sayer JA. Nephronophthisis. *Eur J Hum Genet* 2009;17:406-16. doi: 10.1038/ejhg.2008.238.
6. Studinger P, Lenard Z, Mersich B, Reusz GS, Kollai M. Determinants of baroreflex function in juvenile end-stage renal disease. *Kidney Int*. 2006;69(12):2236-2242
7. Voet M, Cornelissen E.A.M, Van Der Jagt MF, Lemson J, Malagon I. Perioperative anesthesia care for the pediatric patient undergoing a kidney transplantation: An educational review. *Pediatric Anesthesia*. 2021 Nov;31(11):1150–1160. doi: 10.1111/pan.14271
8. Masuda T, Hamasaki Y, Kubota M. Changes in cardiac function after renal transplantation in

- children: significance of pre-transplantation left ventricular hypertrophy. *Pediatr Transplant.* 2019;23(7):e13558. <https://doi.org/10.1111/petr.13558>
9. Hadtstein C, Schaefer F. Hypertension in children with chronic kidney disease: pathophysiology and management. *Pediatr Nephrol.* 2008;23(3):363-371
  10. Turcios NL . Pulmonary complications of renal disorders. *Paediatr Respir Rev.* 2012 Mar;13(1):44-9. doi: 10.1016/j.prrv.2011.04.006.
  11. Kara İ, Çelik G. Böbrek Nakilli Hastalarda Anestezi Yönetimi Anesthesia Management in Patient with Renal Transplant. *Selçuk Tıp Derg* 2013;29(2): 100-104.
  12. Millan MT. A 100% 2-year graft survival can be attained in high-risk 15-kg or smaller infant recipients of kidney allografts. *Arch Surg.* 2000;135(9):1063-1068.
  13. Gingell-Littlejohn M, Koh H, Aitken E, et al. Below-target Postoperative arterial blood pressure but not central venous pressure is associated with delayed graft function. *Transplant Proc.* 2013;45(1):46-50.
  14. İnce İ, Ahıkalıoğlu A, Aksoy M et al. Anaesthetic experience of 200 renal transplantation cases: A retrospective study. *Abant Med J.* 2016;5(2):11 8 – 126. doi:10.5505/abantmedj.2016.08831.
  15. Campos L, Parada B, Furriel F et al. Do Intraoperative Hemodynamic Factors of the Recipient Influence Renal Graft Function?. *Transplant Proc.* 2012;44:1800-1803
  16. Choi SJ, Ha EJ, Jhang WK, et al. Elevated central venous pressure is associated with increased mortality in pediatric septic shock patients. *BMC Pediatrics.* 2018;18(1):58. <https://doi.org/10.1186/s12887-018-1059-1>
  17. Lee E, Gonzalez GR , Staffa SJ, Rodig N , Vakili K, Kim HB. Perioperative renal transplantation management in small children using adult-sized living or deceased donor kidneys: A single-center experience. *Pediatric Transplantation.* 2019 Nov;23(7):e13553. <https://doi.org/10.1111/petr.13553>
  18. Weiss SL, Peters MJ, Alhazzani W, et al. Surviving sepsis campaign international guidelines for the management of septic shock and sepsis-associated organ dysfunction in children. *Intensive Care Med.* 2020;46(Suppl 1):10-67.
  19. Weber T, Wagner T, Neumann K, Deusch E. Low predictability of three different noninvasive methods to determine fluid responsiveness in critically ill children. *Pediatr Crit Care Med.* 2015;16(3):e89-94.
  20. Salvatierra O, Sarwal M. Renal perfusion in infant recipients. of adult-sized kidneys is a critical risk factor. *Transplantation.* 2000;70:412-413.
  21. Marik PE, Cavallazzi R. Does the central venous pressure predict fluid responsiveness? An updated meta-analysis and a plea for some common sense. *Crit Care Med.* 2013;41:1774-1781.
  22. Voet M, Nusmeier A, Lerou J, et al. Cardiac output-guided hemodynamic therapy for adult living donor kidney transplantation in children under 20 kg: a pilot study. *Paediatr Anaesth.* 2019;29(9):950-958.
  23. Aly SA, Zurakowski D, Glass P, et al. Cerebral tissue oxygenation index and lactate at 24 hours postoperative predict survival and neurodevelopmental outcome after neonatal cardiac surgery. *Congenit Heart Dis.* 2017;12:188-195.
  24. Schnuelle P, Woude F J. Perioperative fluid management in renal transplantation: a narrative review of the literature. *Transpl Int.* 2006;19(12):947-959.
  25. O'Malley CM, Frumento RJ, Hardy MA, et al. A randomized, double-blind comparison of lactated Ringer's solution and 0.9% NaCl during renal transplantation. *Anesth Analg.* 2005;100(5):1518-1524.
  26. Bellomo R, Wan L, May C. Vasoactive drugs and acute kidney injury. *Crit Care Med.* 2008;36(4 Suppl):S179-186.
  27. Ricaurte L, Vargas J, Lozano E, et al. Anesthesia and Kidney Transplantation. *Transplant Proc.* 2013;45:1386–1391.

28. Litz RJ, Hübler M, Lorenz W, et al. Renal responses to desflurane and isoflurane in patients with renal insufficiency. *Anesthesiology* 2002; 97:1133–1136.
29. Conzen PF, Kharasch ED, Czerner SE, et al. Low-flow sevoflurane compared with low-flow isoflurane anesthesia in patients with stable renal insufficiency. *Anesthesiology* 2002; 97:578–584.
30. Lemmens HJ. Kidney transplantation: recent developments and recommendations for anesthetic management. *Anesthesiol Clin North Am.* 2004;22:651– 662.
31. Murphy EJ. Acute pain management pharmacology for the patient with concurrent renal or hepatic disease. *Anaesth Intensive Care* 2005; 33:311–322.
32. Mittel AM, Wagener G. Anesthesia for Kidney and Pancreas Transplantation.. *Anesthesiology Clin* – (2017) – <http://dx.doi.org/10.1016/j.anclin.2017.04.005>
33. Cooper RA, Maddineni VR, Mirakhur RK, et al. Time course of neuromuscular effects and pharmacokinetics of rocuronium bromide (Org 9426) during isoflurane anaesthesia in patients with and without renal failure. *Br J Anaesth* 1993;71:222–6.
34. Cammu G, Van Vlem B, Heuvel M, et al. Dialysability of sugammadex and its complex with rocuronium in intensive care patients with severe renal impairment. *Br J Anaesth* 2012;109:382–90.
35. Staals LM, Snoeck MM, Driessen JJ, et al. Reduced clearance of rocuronium and sugammadex in patients with severe to end-stage renal failure: a pharmacokinetic study. *Br J Anaesth* 2010;104:31–9.
36. Hadimioglu N, Ulugol H., Akbas H,et al. Combination of Epidural Anesthesia and General Anesthesia Attenuates Stress Response to Renal Transplantation Surgery. *Transplantation Proceedings.* 2012 Dec; 44, 2949–2954. doi: 10.1016/j.transproceed.2012.08.004.
37. Mukhtar K, Khattak I. Transversus abdominis plane block for renal transplant recipients. *BJA: British Journal of Anaesthesia.* Volume 104, Issue 5, May 2010, Pages 663–664. <https://doi.org/10.1093/bja/aeq077>
38. Kuruba G, Mukhtar K, Singh SKA. Randomised controlled trial of ultrasound-guided transversus abdominis plane block for renal transplantation. *Anaesthesia* 2014, 69, 1222–1226
39. Yanga P, Luob YL, Lina L, et al. The efficacy of transversus abdominis plane block with or without dexmedetomidine for postoperative analgesia in renal transplantation. A randomized controlled trial. *International Journal of Surgery* 79 (2020) 196–201.
40. Kolacz M, Mieszkowski M., Janiak M, et al. Transversus abdominis plane block versus quadratus lumborum block type 2 for analgesia in renal transplantation A randomised trial. *Eur J Anaesthesiol* 2020; 37:773–779.
41. Tamura T, Yokota S, Ito S, et al. Local anesthetic spread into the paravertebral space with two types of quadratus lumborum blocks: a crossover volunteer study. *Journal of Anesthesia* 33, pages26–32 (2019). <https://doi.org/10.1007/s00540-018-2578-5>.
42. Aytuluk HG, Kara MY. Erector spinae plane block for postoperative analgesia in kidney transplantation: A report of 3 cases. *Journal of Clinical Anesthesia.*2020 May;61:109683. doi: 10.1016/j.jclinane.2019.109683.
43. Temirov T, Ben-David B, Mustafin A, et al. Erector Spinae Plane Block in Management of Pain After Kidney Transplantation. *Pain Medicine*, 2019 May 1;20(5):1053-1054. doi: 10.1093/pm/pny221.
44. Sharipova V, Alimov A, Siyabayev F. Erector Spinae Plane Block For Postoperative Analgesia After Kidney Transplant. *Exp Clin Transplant.* 2022 Mar;20(Suppl 1): 83-85. doi: 10.6002/ect.MESOT2021.O36.