

Bölüm 1

ÇOCUKLARDA SANTRAL YOLUN SÜRDÜRÜLMESİNDE BAKIM PAKETİ

Gülçin ÖZALP GERÇEKER¹

Giriş

Santral yol, çocuk yoğun bakım ünitelerinde ve pediatrik hematoloji/onkoloji hastalarında sıklıkla kullanılmaktadır. Tedavinin sürdürülmesinde anahtar role sahiptir. Ancak santral yolun devamlılığının sürdürülebilmesi için, özellikle enfeksiyondan korunması gerekmektedir. Bu doğrultuda, kateterle ilişkili kan dolaşımı enfeksiyonlarının önlenmesine yönelik rehberlerin önerileri takip edilmelidir. Bakım paketi, içerisinde birçok girişimin yer aldığı, bu girişimlerin birlikte uygulanmasıyla iyileşme sürecini olumlu etkileyen bir yaklaşımdır. Bu girişimler rehber önerileri doğrultusunda oluşturulmaktadır. Bakım paketinin uygulanmasıyla, enfeksiyon oranlarında önemli düşüşler sağlanabilir.

Santral Yol

Santral yol uzun süreli venöz girişime ihtiyaç duyan çocuklarda, total parenteral beslenme (TPN), sitotoksik ilaç ve çeşitli intravenöz antibiyotik uygulamaları nedeniyle kullanılabilir. Santral venöz yol ya da santral venöz kateter (SVK) genellikle, çocuk cerrahı ya da deneyimli bir anestezi uzmanı tarafından genel anestezi altında yerleştirilir (Trigg & Mohammed, 2006). Ağrılı ve invaziv işlemlerin azaltılmasına olanak sağlar. Tedaviye bağlı gelişebilecek yan etkileri önler ve çocuğun yaşam kalitesini yükseltir. Subklaviyen veya jugular ven aracılığıyla vena cava superior ve sağ atriuma yerleştirilir, iki tipi bulunmaktadır; eksternal (Hickman-Broviac tipi) ve internal tünelli tamamı cilt altına yerleştirilen kapalı sistem (Port) (Erdemir & Arslan, 2013). İmmun sistemi baskılanmış ya da uzun süreli venöz tedaviye ihtiyaç duyan çocuklarda, komplikasyon ve özellikle enfeksiyon gelişmezse aylarca, yıllarca kullanılabilir. Ancak çocuğun santral venöz sistemine direkt eriştiği için, en büyük risk santral venöz kateterle ilişkili kan dolaşımı enfeksiyonudur (SVK-KDİ). Bu nedenle, santral yolun bakımında aseptik girişimlerin sürdürülmesi önemlidir (Trigg & Mohammed, 2006). SVK tipleri, özellikleri, yerleşim yeri, kullanımı ve enfeksiyon risklerine ilişkin bilgiler Tablo 1’de özetlenmiştir (Chesshyre & ark., 2015).

¹ (Dr. Öğr. Üyesi), Dokuz Eylül Üniversitesi Hemşirelik Fakültesi, gulcin.ozalp@deu.edu.tr

Kan ürünleri seti: 24 saatte 1 değişim, Lipit seti: 24 saatte 1 değişim
TPN (lipit içermeyen) seti: 96 saatten daha fazla sıklıkla değiştirilmez
Propofol seti: 6-12 saatte 1 değişim
Set değişim tarihinin belgelenmesi.

Kaynakça

- Berenholtz, S.M., Pronovost, P.J., Lipsett, P.A., Hobson, D., Earsing, K.& et al. (2004) Eliminating catheter-related bloodstream infections in the intensive care unit. *Critical Care Medicine*, 32 (10), 2014-20.
- Boersma, R.S., Jie, K.S., Verbon, A., van Pampus, E.C. & Schouten, H.C. (2008) Thrombotic and infectious complications of central venous catheters in patients with hematological malignancies. *Annals of Oncology*, 19 (3), 433-42. Doi: 10.1093/annonc/mdm350
- Bundy, D.G., Gaur, A.H., Billett, A.L., He, B., Colantuoni, E.A. & et al. (2014) Preventing CLABSIs among pediatric hematology/oncology inpatients: national collaborative results. *Pediatrics*, 134 (6), e1678-85. Doi: 10.1542/peds.2014-0582.
- Chaiyakunapruk, N., Veenstra, D.L., Lipsky, B.A., Sullivan, S.D. & Saint, S. (2003) Vascular catheter site care: the clinical and economic benefits of chlorhexidine gluconate compared with povidone iodine. *Clinical Infectious Diseases*, 37 (6), 764-71.
- Chesshyre, E., Goff, Z., Bowen, A. & Carapetis, J. (2015), The prevention, diagnosis and management of central venous line infections in children. *Journal of Infection*, 71 (1), S59-75. Doi: 10.1016/j.jinf.2015.04.029.
- Choi, S.W., Chang, L., Hanauer, D.A., Shaffer-Hartman, J., Teitelbaum, D. & et al. (2013). Rapid reduction of central line infections in hospitalized pediatric oncology patients through simple quality improvement methods. *Pediatric Blood & Cancer*, 60 (2), 262-9. Doi: 10.1002/pbc.24187.
- de Jonge, R.C., Polderman, K.H. & Gemke, R.J. (2005) Central venous catheter use in the pediatric patient: mechanical and infectious complications. *Pediatric Critical Care Medicine*, 6 (3), 329-39.
- Duffy, E.A., Rodgers, C.C., Shever, L.L. & Hockenberry, M.J. (2015) Implementing a Daily Maintenance Care Bundle to Prevent Central Line-Associated Bloodstream Infections in Pediatric Oncology Patients. *Journal of Pediatric Oncology Nursing*, 32 (6), 394-400. Doi: 10.1177/1043454214563756
- Entesari-Tatafi, D., Orford, N., Bailey, M.J., Chonghaile, M.N., Lamb-Jenkins, J. & et al. (2015) Effectiveness of a care bundle to reduce central line-associated bloodstream infections. *Medical Journal of Australia*, 202 (5), 247-50.
- Erdemir, F. & Arslan, F.T. (2013) Onkolojik Sorunu Olan Çocuk ve Hemşirelik Bakımı. Zeynep Conk, Zümrüt Başbakkal, Hatice Bal Yılmaz, Bahire Bolışık (Ed.), *Pediatric Hemşireliği içinde* (s.769-822). Ankara: Akademisyen Tıp Kitabevi.
- Ferroni, A., Gaudin, F., Guiffant, G., Flaud, P., Durussel, J.J. & et al. (2014). Pulsative flushing as a strategy to prevent bacterial colonization of vascular access devices. *Medical Devices (Auckland, N.Z.)* 7, 379-83. Doi: 10.2147/MDER.S71217
- Fratino, G., Molinari, A.C., Parodi, S., Longo, S., Saracco, P. & et al. (2005) Central venous catheter-related complications in children with oncological/hematological diseases: an observational study of 418 devices. *Annals of Oncology*, 16 (4), 648-54. Doi:10.1093/annonc/mdi111
- Gavin, N.C., Webster, J., Chan, R.J. & Rickard CM. (2011) Frequency of dressing changes for central venous access devices on catheter related infections. *Cochrane Database of Systematic Reviews*, 7, CD009213.
- Garland, J.S., Buck, R.K., Maloney, P., Durkin, D.M., Toth-Lloyd, S. & et al. (2001) A randomized trial comparing povidone-iodine to a chlorhexidine-impregnated dressing for prevention of central venous catheter infections in neonates. *Pediatrics*, 107 (6), 1431-6.
- Gillies, D., O'Riordan, E., Carr, D., O'Brien, I., Frost, J. & et al. (2003) Central venous catheter dressings: a systematic review. *Journal of Advanced Nursing*, 44 (6), 623-32.
- Goossens, G.A. (2015) Flushing and Locking of Venous Catheters: Available Evidence and Evidence Deficit. *Nursing Research and Practice*, 985686. Doi: 10.1155/2015/985686.
- Hakyemez, İ.N., Küçükbayrak, A. & Akdeniz H. (2012) Damar içi kateter enfeksiyonlarına güncel yaklaşım. *Abant Medical Journal*, 1 (2), 94-8. Doi: 10.5505/abantmedj.2012.33042
- Harney, K.M., McCabe, M., Branowicki, P., Kalish, L.A. & Neufeld, E.J. (2010) Observational cohort study of pediatric inpatients with central venous catheters at intermediate risk of thrombosis and eligible for anticoagulant prophylaxis. *Journal of Pediatric Oncology Nursing*, 27 (6), 325-9. Doi: 10.1177/1043454210369895.

Huang, E.Y., Chen, C., Abdullah, F., Aspelund, G., Barnhart, D.C. & et al. (2011) Strategies for the prevention of central venous catheter infections: an American Pediatric Surgical Association Outcomes and Clinical Trials Committee systematic review. *Journal of Pediatric Surgery*, 46 (10), 2000-11. Doi: 10.1016/j.jpedsurg.2011.06.017.

Infusion Nurses Society. (2011) Infusion nursing standards of practice. *Journal of Infusion Nursing*, 34, 1S.

Joint Commission (2012) Preventing Central Line–Associated Bloodstream Infections: A Global Challenge, A Global Perspective. (cited 2018 March 11 Available from: http://www.jointcommission.org/preventing_clabsi/).

Karki, S. & Cheng, A.C. (2012) Impact of non-rinse skin cleansing with chlorhexidine gluconate on prevention of healthcare-associated infections and colonization with multi-resistant organisms: a systematic review. *Journal of Hospital Infection*, 82 (2), 71-84. Doi: 10.1016/j.jhin.2012.07.005

Kerwat, K., Eberhart, L., Kerwat, M., Hörth, D., Wulf, H. & et al. (2015) Chlorhexidine gluconate dressings reduce bacterial colonization rates in epidural and peripheral regional catheters. *Biomed Reserach International*, 149785. Doi: 10.1155/2015/149785

Krishnaiah, A., Soothill, J., Wade, A., Mok, Q.Q. & Ramnarayan, P. (2012) Central venous catheter-associated bloodstream infections in a pediatric intensive care unit: effect of the location of catheter insertion. *Pediatric Critical Care Medicine*, 13 (3), e176-80. Doi: 10.1097/PCC.0b013e3182389548.

Levy, I., Katz, J., Solter, E., Samra, Z., Vidne, B. & et al. (2005) Chlorhexidine-impregnated dressing for prevention of colonization of central venous catheters in infants and children: a randomized controlled study. *Pediatric Infectious Diseases Journal*, 24 (8), 676-9.

Loveday, H.P., Wilson, J.A., Pratta, R.J., Golsorkhia, M., Tinglea, A. & et al. (2014) Epic 3: national evidence-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. *Journal of Hospital Infection*, 86 (1), S1-70. Doi: 10.1016/S0195-6701(13)60012-2.

Marschall, J., Mermel, L.A., Fakih, M., Hadaway, L., Kallen, A. & et al. (2014) Strategies to prevent central line-associated bloodstream infections in acute care hospitals: 2014 update. *Infection Control and Hospital Epidemiology*, 35 (7), 753-71. Doi: 10.1086/676533

McLean, T.W., Fisher, C.J., Snively, B.M. & Chauvenet, A.R. (2005) Central venous lines in children with lesser risk acute lymphoblastic leukemia: optimal type and timing of placement. *Journal of Clinical Oncology*, 23 (13), 3024-9. Doi: 10.1200/JCO.2005.12.097

Odabas, H., Ozdemir, N.Y., Ziraman, I., Aksoy, S., Abali, H. & et al. (2014) Effect of port-care frequency on venous port catheter-related complications in cancer patients. *International Journal of Clinical Oncology*, 19 (4), 761-6. Doi: 10.1007/s10147-013-0609-7.

O'Grady, N.P., Alexander, M., Burns, L.A., Dellinger, E.P., Garland, J. & et al. (2011) Guidelines for the prevention of intravascular catheter-related infections. *American Journal of Infection Control*, 39 (4), S1-34. Doi: 10.1016/j.ajic.2011.01.003.

Patel, G.S., Jain, K., Kumar, R., Strickland, A.H., Pellegrini, L. & et al. (2014) Comparison of peripherally inserted central venous catheters (PICC) versus subcutaneously implanted port-chamber catheters by complication and cost for patients receiving chemotherapy for non-haematological malignancies. *Support Care in Cancer*, 22 (1), 121-8. Doi: 10.1007/s00520-013-1941-1.

Polat, F., Şahinoğlu, A.H., Dilek, A., Köksal, E., Üstün, Y.B. & ark. (2014) Rehberlere Dayalı Önlem ve Bakım Paketlerinin Yoğun Bakım Ünitesinde Santral Venöz Kateter Enfeksiyonları Üzerine Etkisi. *Türk Yoğun Bakım Derneği Dergisi*, 12, 86-93. Doi: 10.4274/tybdd.19483

Rinke, M.L., Bundy, D.G., Milstone, A.M., Deuber, K., Chen, A.R. & et al. (2012) Implementation of a central line maintenance care bundle in hospitalized pediatric oncology patients. *Pediatrics*, 130 (4), e996-e1004. Doi: 10.1542/peds.2012-0295

Rivas-Ruiz, R., Villasis-Keever, M.A., Miranda-Novales, M.A., Castelan-Martínez, D., Vivanco-Muñoz, N. & et al. (2011) Efficacy of a chlorhexidine-gluconate impregnated patch for prevention of catheter-related infections in pediatric patients: systematic review and meta-analysis. *Boletín médico del Hospital Infantil de México*, 68 (5), 349-55.

Rosenthal, V.D., Udwardia, F.E., Kumar, S., Poojary, A., Sankar, R. & al. (2015) Clinical impact and cost-effectiveness of split-septum and single-use prefilled flushing device vs 3-way stopcock on central line-associated bloodstream infection rates in India: a randomized clinical trial conducted by the International Nosocomial Infection Control Consortium (INICC). *American Journal of Infection Control*, 43 (10), 1040-5. Doi: 10.1016/j.ajic.2015.05.042.

Samaras, P., Dold, S., Braun, J., Kestenholz, P., Breitenstein, S. & et al. (2008) Infectious port complications are more frequent in younger patients with hematologic malignancies than in solid tumor patients. *Oncology*, 74 (3-4), 237-44. Doi: 10.1159/000151393.

Schallom, M.E., Prentice, D., Sona, C., Micek, S.T. & Skrupky, L.P. (2012) Heparin or 0.9% sodium chloride to maintain central venous catheter patency: a randomized trial. *Critical Care Medicine*, 40 (6), 1820-6. Doi: 10.1097/CCM.0b013e31824e11b4.

Schreiber, S., Zanchi, C., Ronfani, L., Delise, A., Corbelli, A. & et al. (2015) Normal saline flushes performed once daily maintain peripheral intravenous catheter patency: a randomised controlled trial. *Archives Diseases in Childhood*, 100 (7), 700-3. Doi: 10.1136/archdischild-2014-307478.

Schwebel, C., Lucet, J.C., Vesin, A., Arrault, X., Calvino-Gunther, S. & et al. (2012) Economic evaluation of chlorhexidine-impregnated sponges for preventing catheter-related infections in critically ill adults in the Dressing Study. *Critical Care Medicine*, 40 (1), 11-7. Doi: 10.1097/CCM.0b013e31822f0604.

Simon, A., Bode, U. & Beutel, K. (2006) Diagnosis and treatment of catheter-related infections in paediatric oncology: an update. *Clinical Microbiology and Infection*, 12 (7), 606-20. Doi: 10.1111/j.1469-0691.2006.01416.x

Smulders, C.A., van Gestel, J.P. & Bos, A.P. (2013) Are central line bundles and ventilator bundles effective in critically ill neonates and children? *Intensive Care Medicine*, 39 (8), 1352-8. Doi: 10.1007/s00134-013-2927-7.

Şardan, Y.Ç., Güner, R., Çakar, N., Ağalar, F., Bolaman, Z. & ark. (2013) Damar İçi Kateter Enfeksiyonlarının Önlenmesi Kılavuzu, Türk Hastane İnfeksiyonları ve Kontrolü Derneği, Damar İçi Kateter İnfeksiyonlarının Önlenmesi Çalışma Grubu, 2013. *Hastane İnfeksiyonları Dergisi*, 17 (2), 233-78.

Teichgräber, U.K., Pfitzmann, R. & Hofmann, H.A. (2011) Central venous port systems as an integral part of chemotherapy. *Deutsches Ärzteblatt International*, 108 (9), 147-53. Doi: 10.3238/arztebl.2011.0147

Trigg, E. & Mohammed, T.A. (2006) *Practices in Children's Nursing Guidelines for Hospital and Community*. UK: Elsevier Churchill Livingstone.

Walz, J.M., Ellison, R.T., Mack, D.A., Flaherty, H.M., McIlwaine, J.K. & et al. (2015) The bundle "plus": the effect of a multidisciplinary team approach to eradicate central line-associated bloodstream infections. *Anesthesia and Analgesia*, 120 (4), 868-76. Doi: 10.1213/ANE.0b013e3182a8b01b.

Webster, J., Gillies, D., O'Riordan, E., Sherriff, K.L. & Rickard, C.M. (2011) Gauze and tape and transparent polyurethane dressings for central venous catheters. *Cochrane Database of Systematic Reviews*, 11, CD003827. Doi: 10.1002/14651858.CD003827.pub2.

Ye, X., Rupnow, M., Bastide, P., Lafuma, A., Ovington, L. & et al. (2011) Economic impact of use of chlorhexidine-impregnated sponge dressing for prevention of central line-associated infections in the United States. *American Journal of Infection Control*, 39 (8), 647-54. Doi: 10.1016/j.ajic.2010.11.008.

Zachariah, M., Al-Yazidi, L., Bashir, W., Al Rawas, A.H., Wali, Y. & et al. (2014) Spectrum of external catheter-related infections in children with acute leukemia-Single-center experience. *Journal of Infection and Public Health*, 7 (1), 38-43. Doi: 10.1016/j.jiph.2013.06.005.

CDC (2018) *Bloodstream Infection Event (Central Line-Associated Bloodstream Infection)* (cited 2018 March 6 Available from: https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf)