

BÖLÜM 34

YOĞUN BAKIMDA NUTRİSYON

Fatma AKIN¹

Yoğun bakım hastalarında beslenme desteği son derece önemlidir. Mevcut katabolik durumu yavaşlatmak veya ortadan kaldırmak ve yoğun bakım ünitesinde (YBÜ) yatış süresini kısaltmak için hasta spesifik en uygun beslenme programını uygulamak gerekir.

BESLENME DURUMUNU DEĞERLENDİRME

YBÜ'nde beslenme durumunun objektif şekilde değerlendirilmesi son derece zordur; çünkü yoğun bakım hastaları normal popülasyondan daha kompleks niteliktedir. Örneğin triseps cilt altı kalınlığı ya da orta kol çapı ölçümü yoğun bakım hastalarında çoğunlukla var olan ödem nedeniyle yanıltıcıdır; el kavrama gücü bilinci kapalı hastalarda değerlendirilemez; transferrin, prealbumin, albümin gibi laboratuvar parametreleri yoğun bakım hastalarında zaten normal sınırların dışındadır. Bu nedenlerle hastanın klinik değerlendirmesi objektif ölçümlerden daha anlamlı hale gelebilir (1). Kilo kaybı, gastrointestinal semptomlar, azalmış fonksiyonel kapasite, incelmış deri, kas kaybı, periferik ödem ve asit

hastanın beslenme durumunun kötü olduğunu gösteren klinik bulgulardandır.

Her ne kadar laboratuvar tetkikleri kritik hastalardaki beslenme durumunu değerlendirmede çok önemli bir yere sahip olmasa da, elektif major ameliyatlardan önce yararlı olabilir. Serum albumin düzeyi, postoperatif komplikasyon riski ile yakından ilişkilidir (2). Bu, basit bir tarama testi ile ortaya konan preoperatif malnutrasyonun tedavi edilerek sonuçların iyileştirilme olasılığını arttırır.

HASTA SEÇİMİ VE BESLENME ZAMANI

Yetersiz beslenme, negatif azot ve kalori dengesi ve uzun süreli açlık ile ölüm arasındaki yakın ilişki kritik hastalarda beslenme desteğini zorunlu kılar. Bununla birlikte hangi hastaya ne zaman beslenme başlanacağı son derece önemlidir. Genel eğilim beslenme öncesinde daha kısa süreler için hastanın uygun tolerans göstermesi durumunda hızlıca beslenme desteğine başlama yönündedir.

¹ Uzm. Dr. Anesteziyoloji ve Reanimasyon Erzurum Bölge Eğitim ve Araştırma Hastanesi, fatmaakindr@gmail.com

KAYNAKLAR

1. Makhija S, Baker J. "The Subjective Global Assessment: a review of its use in clinical practice" *Nutrition in Clinical Practice* 2008;23(4):405-409.
2. Kudsk KA, Tolley EA, DeWitt RC, et al. "Preoperative albumin and surgical site identify surgical risk for major postoperative complications" *J Parenter Enteral Nutr.* 2003;27:1-9.
3. Doig GS, Simpson F. "Early enteral nutrition in the critically ill: do we need more evidence or better evidence?" *Curr Opin Crit Care* 2006;12:126ü130.
4. Ziegler TR. "Parenteral nutrition in the critically ill patient" *New England Journal of Medicine* 2009;361.11:1088-1097.
5. Krishnan JA, Parce PB, Martinez A, et al. "Caloric intake in medical ICU patients: consistency of care with guidelines and relationship to clinical outcomes" *Chest* 2003;124:297-305.
6. Arabi YM, Tamim HM, Dhar GS, et al. "Permissive underfeeding and intensive insulin therapy in critically ill patients: a randomized controlled trial" *Am J Clin Nutr* 2011;93:569-77.
7. Rice TW, Wheeler AP, Thompson BT, et al. "Initial trophic vs full enteral feeding in patients with acute lung injury: the EDEN randomized trial" *JAMA* 2012;307:795-803.
8. Rubinson L, Diette GB, Song X, et al. "Low caloric intake is associated with nosocomial bloodstream infections in patients in the medical intensive care unit" *Crit Care Med* 2004;32:350-357.
9. Villet S, Chiolerio RL, Bollmann MD, et al. "Negative impact of hypocaloric feeding and energy balance on clinical outcome in ICU patients" *Clin Nutr* 2005;24:502-509.
10. Plank LD, Hill GL. "Sequential metabolic changes following induction of systemic inflammatory response in patients with severe sepsis or major blunt trauma" *World J Surg* 2000;24:630-638.
11. Alexander E, Susla GM, et al. "Retrospective evaluation of commonly used equations to predict energy expenditure in mechanically ventilated, critically ill patients." *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy* 2004;1659-1667.
12. Singer P, Anbar R, Cohen J, et al. "The tight calorie control study (TICACOS): a prospective, randomized, controlled pilot study of nutritional support in critically ill patients" *Intensive Care Med* 2011;37:601-609.
13. McAtear CA, et al. "Current perspectives on enteral nutrition in adults" *British Association for Parenteral and Enteral Nutrition*, 1999.
14. Rosenthal MD, Vanzant EL, and Brakenridge SC. "Nutritional Assessment, Parenteral, And Enteral Nutrition" *Abernathy's Surgical Secrets E-Book* 2017:37.
15. Genton L, Pichard C. "Protein catabolism and requirements in severe illness" *International Journal for Vitamin and Nutrition Research* 2011;81.2:143.
16. Prelack K, Sheridan RL. "Micronutrient supplementation in the critically ill patient: strategies for clinical practice." *Journal of Trauma and Acute Care Surgery* 2001; 51.3:601-620.
17. Calder PC, Jensen GL, et al. "Lipid emulsions in parenteral nutrition of intensive care patients: current thinking and future directions." *Intensive care medicine* 2010;36.5:735-749.
18. Guglielmi FW, Boggio-Bertinet D, et al. "Total parenteral nutrition-related gastroenterological complications." *Digestive and Liver Disease* 2006;38.9:623-642.
19. Deitch EA. "Gut-origin sepsis: evolution of a concept." *The Surgeon* 2012;10.6:350-356.
20. Simpson F, and Doig GS. "Parenteral vs. enteral nutrition in the critically ill patient: a meta-analysis of trials using the intention to treat principle." *Intensive care medicine* 2005;31.1:12-23.
21. Braunschweig CL, et al. "Enteral compared with parenteral nutrition: a meta-analysis." *The American journal of clinical nutrition* 2001;74.4:534-542.
22. Elke G, et al. "Enteral versus parenteral nutrition in critically ill patients: an updated systematic review and meta-analysis of randomized controlled trials" *Critical Care* 2016;20.1:17.
23. Haddad SH, and Arabi YM. "Critical care management of severe traumatic brain injury in adults." *Scandinavian Journal Of Trauma, Resuscitation And Emergency Medicine* 2012;20.1:12.
24. Cook AM, Peppard A, and Magnuson B. "Nutrition considerations in traumatic brain injury." *Nutrition In Clinical Practice* 2008;23.6:608-620.
25. Härtl R, Gerber LM, Ni Q, and Ghajar J. "Effect of early nutrition on deaths due to severe traumatic brain injury" *Journal of neurosurgery* 2008; 109(1), 50-56.
26. Marik PE, Zaloga GP. "Meta-analysis of parenteral nutrition versus enteral nutrition in patients with acute pancreatitis" *BMJ* 2004;328:1407.
27. Dellinger RP, Levy MM, Rhodes A, Annane D, Gerlach H, Opal SM, et al. "Surviving Sepsis Cam-

- paign: international guidelines for management of severe sepsis and septic shock, 2012” *Intensive care medicine* 2013;39(2), 165-228.
28. Rowan K. “Clinical and cost-effectiveness of early nutritional support in critically ill patients via the parenteral versus the enteral route” ISRCTN17386141 Register (cited 2012) <https://doi.org/10.1186/ISRCTN17386141>
 29. Heyland DK, Dhaliwal R, Drover JW, et al. “Canadian clinical practice guidelines for nutrition support in mechanically ventilated, critically ill adult patients” *J Parenter Enteral Nutr* 2003;27:355-373.
 30. Singer P, Berger MM, Van den Berghe G, et al. “ESPEN Guidelines on Parenteral Nutrition: intensive care” *Clin Nutr* 2009;28:387-400.
 31. McClave SA, Martindale RG, Vanek VW, et al. “Guidelines for the provision and assessment of nutrition support therapy in the adult critically ill patient: Society of Critical Care Medicine (SCCM) and American Society for Parenteral and Enteral Nutrition (ASPEN)” *J Parenter Enteral Nutr* 2009; 33:277–316.
 32. Casaer MP, Mesotten D, Hermans G, et al. “Early versus late parenteral nutrition in critically ill adults” *N Engl J Med* 2011;365:506-517.
 33. Martin CM, Doig GS, Heyland DK, et al. “Multicentre, cluster-randomized clinical trial of algorithms for critical-care enteral and parenteral therapy” *CMAJ* 2004;170 (2) 197-204.
 34. White H, Sosnowski K, Tran K, et al. “A randomised controlled comparison of early post-pyloric versus early gastric feeding to meet nutritional targets in ventilated intensive care patients” *Crit Care* 2009;13:R187.
 35. Davies AR, Morrison SS, Bailey MJ, et al. “A multicenter, randomized controlled trial comparing early nasojejunal with nasogastric nutrition in critical illness” *Crit Care Med* 2012;40:2342-2348.
 36. Booth CM, Heyland DK, Paterson WG. “Gastrointestinal promotility drugs in the critical care setting: a systematic review of the evidence” *Crit Care Med* 2002;30:1429-1435.
 37. Holzinger U, Brunner R, Miehsler W, et al. “Jejunum tube placement in critically ill patients: A prospective, randomized trial comparing the endoscopic technique with the electromagnetically visualized method” *Crit Care Med* 2011;39:73-77.
 38. Acosta-Escribano J, Fernandez-Vivas M, Grau Carmona T, et al. “Gastric versus transpyloric feeding in severe traumatic brain injury: a prospective, randomized trial” *Intensive Care Med* 2010;36:1532-1539.
 39. Hsu CW, Sun SF, Lin SL, et al. “Duodenal versus gastric feeding in medical intensive care unit patients: a prospective, randomized, clinical study” *Crit Care Med* 2009;37:1866-1872.
 40. Taylor SJ, Fettes SB, Jewkes C, et al. “Prospective, randomized, controlled trial to determine the effect of early enhanced enteral nutrition on clinical outcome in mechanically ventilated patients suffering head injury” *Crit Care Med* 1999;27:2525-2531.
 41. Mentec H, Dupont H, Bocchetti M, et al. “Upper digestive intolerance during enteral nutrition in critically ill patients: frequency, risk factors, and complications” *Crit Care Med* 2001;29:1955-1961.
 42. McClave SA, Lukan JK, Stefater JA, et al. “Poor validity of residual volumes as a marker for risk of aspiration in critically ill patients” *Crit Care Med* 2005;33: 324-330.
 43. Drakulovic MB, Torres A, Bauer TT, et al. “Supine body position as a risk factor for nosocomial pneumonia in mechanically ventilated patients: a randomised trial” *Lancet* 1999;354:1851-1858.
 44. Abuksis G, Mor M, Plaut S, et al. “Outcome of percutaneous endoscopic gastrostomy (PEG): comparison of two policies in a 4-year experience” *Clin Nutr* 2004;23:341-346.
 45. Frohmader TJ, Chaboyer WP, Robertson IK, et al. “Decrease in frequency of liquid stool in enterally fed critically ill patients given the multispecies probiotic VSL#3: a pilot trial”. *Am J Crit Care* 2010;19:e1–11.
 46. Ferrie S, Daley M. “Lactobacillus GG as treatment for diarrhea during enteral feeding in critical illness: randomized controlled trial” *J Parenter Enteral Nutr* 2011;35:43-49.
 47. Fraenkel DJ, Rickard C, Lipman J. “Can we achieve consensus on central venous catheter-related infections?” *Anaesth Intensive Care* 2000;28:475-490.
 48. Calder PC. “Hot topics in parenteral nutrition. Rationale for using new lipid emulsions in parenteral nutrition and a review of the trials performed in adults” *Proc Nutr Soc* 2009;68:252-260.
 49. Doig G, Simpson F. Evidence-based Guidelines for Nutritional Support of the Critically Ill: Results of a Bi-National Guideline Development Conference. Sydney: EvidenceBased.net; 2005.
 50. McClave SA, Chang WK, Dhaliwal R, et al. “Nutrition support in acute pancreatitis: a systematic review of the literature” *J Parenter Enteral Nutr* 2006;30:143-156.

51. McClave SA, Kushner R, Van Way 3rd CW, et al. "Nutrition therapy of the severely obese, critically ill patient: summation of conclusions and recommendations" *J Parenter Enteral Nutr* 2011;35:88-96.
52. Hall JC, Dobb G, Hall J, et al. "A prospective randomized trial of enteral glutamine in critical illness" *Intensive Care Med* 2003;29:1710-1716.
53. Wernerman J, Kirketeig T, Andersson B, et al. "Scandinavian glutamine trial: a pragmatic multi-centre randomised clinical trial of intensive care unit patients" *Acta Anaesthesiol Scand* 2011;55:812-818.
54. Griffiths RD, Jones C, Palmer TE. "Six-month outcome of critically ill patients given glutamine-supplemented parenteral nutrition" *Nutrition* 1997;13:295-302.
55. Goeters C, Wenn A, Mertes N, et al. "Parenteral l-Alanyl-l-Glutamine improves 6-month outcome in critically ill patients" *Crit Care Med* 2002;30:2032-2037.
56. Andrews PJ, Avenell A, Noble DW, et al. "Randomised trial of glutamine, selenium, or both, to supplement parenteral nutrition for critically ill patients" *BMJ* 2011;342:d1542.
57. Angstwurm MW, Engelmann L, Zimmermann T, et al. "Selenium in Intensive Care (SIC): results of a prospective randomized, placebo-controlled, multicenter study in patients with severe systemic inflammatory response syndrome, sepsis, and septic shock" *Crit Care Med* 2007;35:118-126.
58. Heyland DK, Novak F, Drover JW, et al. "Should immunonutrition become routine in critically ill patients? A systematic review of the evidence". *JAMA* 2001;286:944-953.
59. Rice TW, Wheeler AP, Thompson BT, et al. "Enteral omega-3 fatty acid, gamma-linolenic acid, and antioxidant supplementation in acute lung injury. *JAMA* 2011;306:1574-1581.
60. Stapleton RD, Martin TR, Weiss NS, et al. "A phase II randomized placebo-controlled trial of omega-3 fatty acids for the treatment of acute lung injury" *Crit Care Med* 2011;39:1655-1662.