

Rejyonel Anestezi Yönetimi

Muhammed İsmail TEPE

Giriş

Son yıllarda toplumda cerrahi işlem yapılan yaşlı hasta sayısı her geçen gün artmaktadır. Ek hastalıkları bulunan yaşlı hastalarda, cerrahiye stres yanıtı azaltmak, bulantı, kusma ve konfüzyon gibi postoperatif komplikasyonlardan kaçınmak için lokal veya bölgesel anestezi tercih edilebilir. İşlem süresinin ve postoperatif mobilizasyonun önemli olduğu ileri yaş grubunda rejyonel anestezi yöntemlerinin tercih edilmesi, perioperatif mortalite ve morbiditeyi azaltacaktır. Bu bölümde, geriatric popülasyonda planlanan rejyonel anestezinin yönetiminden bahsedilecektir.

I. Yaşla İlgili Değişiklikler

Yaşlanmayla ortaya çıkan anatomik ve fizyolojik değişiklikler nöral blok karakteristiğini ve farmako-kinetiğini değiştirir. Nöron sayısındaki azalma, miyelin kılıflardaki deformasyon, omurga anatomisindeki değişim rejyonel anestezi karakteristiğini etkileyebilir (1, 2). Ayrıca periferik sinirlerdeki akson sayısı yaşla azalır. Özellikle motor sinirlerde iletim hızı düşer (3, 4). Bağı dokusundaki yaşla ortaya çıkan değişiklikler lokal anestezinin dağılımına tesir ederek bloğu değiştirebilir. Genişleyen araknoid villuslar sebebiyle duramater lokal anesteziyelere karşı daha geçirgen hale gelir. Muhtemelen yaşlanmayla ilişkili olarak BOS miktarı azalır ve özgül ağırlığı artar (5, 6).

II. Santral Nöral Blok

Uzun etkili ropivakain-levobupivakain ile epidural anestezi yapıldığında yaşlı hastalarda gençlere nazaran daha fazla etki ortaya çıkar. Ayrıca yaşlı hastalarda kaudat segmentte daha hızlı başlangıç olurken bloğun çözülme süresi de daha uzundur. Ancak derlenme süreleri yaştan etkilenmez (7). Epidural anestezide yaşla birlikte

Sonuç olarak, bu bölümde yaşlı hastalarda rejyonel anestezinin çeşitli yönleri ana hatlarıyla açıklanmaya çalışılmıştır. Hakim görüş, yaşlı hastaların lokal anestezi ajanlarına karşı daha duyarlı oldukları ve farklı klinik seyir gösterebildikleridir. Yaşlı hastalar, epidural ve spinal anestezi sonrası daha yüksek duyuşsal ve motor blokaj seviyelerine ulaşabilir ve ayrıca blokaj nedenli hipotansiyona daha yatkındırlar. Bu nedenle, yaşlı hastalarda yan etkileri sınırlamak için bolus lokal anestezi dozları azaltılmalıdır. Rejyonel teknikler iyi ağrı kontrolü, daha az kanama, cerrahi ve stres yanıtın baskılanması ve daha iyi periferik dolaşım gibi faydalar sunar. İskemik kalp hastalığı olanlarda rejyonel tekniklerden 'torasik epidural analjezi' kardiyak morbiditeyi azalttığı sonucuna ulaşılmıştır. Postoperatif rejyonel analjezi pulmoner komplikasyonları azaltarak cerrahi sonucu iyileştirebilir. Rejyonel anestezi fibrinolitik mekanizma üzerindeki olumlu etkileriyle tromboembolik hadiseleri azaltabilir. Bu etki özellikle kalça replasman cerrahisi yapılan yaşlı hastalardaki erken dönem mortalitesinin azalmasına katkı sağlar. Ayrıca abdominal cerrahi geçiren hastalarda epidural analjezinin ileus gelişimini azalttığı bilinmektedir. Bunlara ek olarak yaşlı hastalarda uygulanan rejyonel anestezi tekniklerinin morbidite, mortalite YBÜ'de kalış süresi ve maliyet açısından daha net sonuçlara ulaşılabilmesi için daha geniş kapsamlı çalışmalara ihtiyaç duyulmaktadır.

Kaynaklar

1. Bromage PR. Epidural Analgesia. Philadelphia: WB Saunders; 1978:31-5.
2. Ferrer-Brechner T. Spinal and epidural anesthesia in the elderly. *Semin Anesthesia* 1986;V:54-61.
3. Jacob JM, Love S. Qualitative and quantitative morphology of human sural nerve at different ages. *Brain* 1985; 108:897-924.
4. Dorfman LJ, Bosley TM. Age related changes in peripheral and central nerve conduction in man. *Neurology* 1979;29: 38-44.
5. May C, Kaye JA, Atack JR, et al. Cerebrospinal fluid production is reduced in healthy aging. *Neurology* 1990;40: 500-503.
6. Greene NM. *Physiology of Spinal Anesthesia*. 3rd ed. Baltimore: Williams & Wilkins; 1981:5.
7. Silverstein JH. In: Silverstein JH, Rooke GA, Reves JG, McLeskey CH, editors. *Geriatric anesthesiology*. 2nd ed. New York: Springer; 2008. p. 3-14.
8. Simon MJ, Veering BT, Stienstra R, et al. The effects of age on neural blockade and hemodynamic changes after epidural anesthesia with ropivacaine. *Anesthesia Analgesia* 2002;94: 1325-30.
9. Veering BT, Burm AGL, Spierdijk J. Spinal anaesthesia with hyperbaric bupivacaine: effects of age on neural blockade and pharmacokinetics. *British Journal Anaesthesia* 1988;60: 187-94.
10. Shanta TR, Evans JA. The relationship of epidural anesthesia to neural membranes and arachnoid villi. *Anesthesiology* 1972;37:543-57.

11. Pitkänen M, Haapaniemi L, Tuominen M, et al. Influence of age on spinal anesthesia with isobaric 0.5% bupivacaine. *British Journal Anaesthesia*. 1984;56:279-84.
12. Boss EG, Schuh FT. Der Einfluss des Lebensalters auf die Ausbreitung der Spinalanästhesie mit isobarem Mepivacain 2%. *Anesthesist* 1993;42:162-8.
13. Cusson J, Nattel S, Matthews C, et al. Age-dependent lignocaine disposition in patients with acute myocardial infarction. *Clin Pharmacol Ther* 1985;37:381-86.
14. Veering BT, Burm AGL, Van Kleef JW, et al. Epidural anesthesia with bupivacaine: effects of age on neural blockade and pharmacokinetics. *Anesthesia Analgesia* 1987;66: 589-94.
15. Veering BT, Burm AGL, Vletter AA, et al. The effect of age on systemic absorption and systemic disposition of bupivacaine after subarachnoid administration. *Anesthesiology* 1991;74:250-7.
16. Racle JP, Benkhadra A, Poy JY, et al. Prolongation of isobaric bupivacaine spinal anesthesia with epinephrine and clonidine for hip surgery in the elderly. *Anesthesia Analgesia* 1987; 66:442-6.
17. Paqueron X, Boccara G, Bendahou M, et al. Brachial plexus nerve block exhibits prolonged duration in the elderly. *Anesthesiology* 2002;97:1245-9.
18. Priebe HJ. The aged cardiovascular risk patient. *Br J Anaesth* 2000;85:763-78
19. Greenblatt DJ, Sellers EM, Shader RI. Drug disposition in old age. *New England Journal of Medicine* 1982;306:1081-108
20. Nation RL, Triggs EJ, Selig M. Lignocaine kinetics in cardiac patients and aged subjects. *Br J Clin Pharmacol* 1977;4:439-48.
21. Cussack B, O'Malley K, Lavan J, et al. Protein binding and disposition of lignocaine in the elderly. *Eur J Clin Pharmacol* 1985;29:923-29.
22. Tucker GT, Wiklund L, Berlin-Wahlen A, et al. Hepatic clearance of local anesthetics in man. *J Pharmacokinet Biopharm* 1977;5:11-22.
23. Bowdle TA, Freund PR, Slattery JT. Age dependent lidocaine pharmacokinetics during lumbar peridural anesthesia with lidocaine hydrocarbonate or lidocaine hydrochloride. *Reg Anesth* 1986;11:123-7.
24. Gielen M. Post dural puncture headache (PDPH): a review. *Reg Anesth* 1989;14:101-6.
25. Veering BT, Cousins MJ. Cardiovascular and pulmonary effects of epidural anaesthesia. *Anaesth Intensive Care* 2000;28:620-35.
26. Carpenter RL, Caplan RA, Brown DL, et al. Incidence and risk factors for side effects of spinal anesthesia. *Anesthesiology* 1992;76:906-12.
27. Juelsgaard P, Sand NP, Felsby S, et al. Perioperative myocardial ischaemia in patients undergoing surgery for fractured hip randomized to incremental spinal, single-dose spinal or general anaesthesia. *Eur J Anaesthesiol* 1998;15: 656-63
28. Rooke GA. Cardiovascular aging and anesthetic implications. *J Cardiothorac Vasc Anesth* 2003;17:512-23.
29. Coe AJ, Revanas B. Is crystalloid preloading useful in spinal anaesthesia in the elderly? *Anaesthesia* 1990;45: 241-3.

30. Buggy DJ, Power CK, Meeke R, et al. Prevention of spinal anaesthesia-induced hypotension in the elderly: i.m. methoxamine or combined hetastarch and crystalloid. *Br J Anaesth* 1998;80:199-203.
31. Critchley LA, Short TG, Gin T. Hypotension during subarachnoid anaesthesia: haemodynamic analysis of three treatments. *Br J Anaesth* 1994;72:151-5.
32. Critchley LA, Conway F. Hypotension during subarachnoid anaesthesia: haemodynamic effects of colloid and metaraminol. *Br J Anaesth* 1996;76:734-6.
33. Ben-David B, Frankel R, Arzumonov T, et al. Minidose bupivacaine-fentanyl spinal anesthesia for surgical repair of hip fracture in the aged. *Anesthesiology* 2000;92:6-10.
34. Veering BT, Ter Riet PM, Burm AGL, et al. Spinal anaesthesia with 0.5% hyperbaric bupivacaine in elderly patients: effect of site of injection on spread of analgesia. *Br J Anaesth* 1996;77:343-6.
35. Frank SM, El-Rahmany HK, Cattaneo CG, et al. Predictors of hypothermia during spinal anesthesia. *Anesthesiology* 2000;92:1330-4.
36. Jin F, Chung F. Minimizing perioperative adverse events in the elderly. *Br J Anaesth* 2001;87:608-624.
37. Bell GD, Reeve PA, Moshiri M, et al. Intravenous midazolam for upper gastrointestinal endoscopy: a study of 800 consecutive cases relating dose to age and sex of patient. *Br J Clin Pharmacol* 1987;23:241-3.
38. Schnider TW, Minto CF, Shafer SL, et al. The influence of age on propofol pharmacodynamics. *Anesthesiology* 1999; 90:1502-16.
39. Shinozaki M, Usui Y, Yamaguchi S, et al. Recovery of psychomotor function after propofol sedation is prolonged in the elderly. *Can J Anaesth* 2002;49:927-31.
40. Wu CL, Hsu W, Richman JM, et al. Postoperative cognitive function as an outcome of regional anesthesia and analgesia. *Reg Anesth Pain Med* 2004;29:257-68.
41. Williams-Russo P, Urquhart RN, Sharrock NE, et al. Postoperative delirium: predictors and prognosis in elderly orthopedic patients. *J Am Geriatr Soc* 1992;40:759-67.
42. Moller JT, Cluitmans P, Rasmussen LS, et al. Long-term postoperative cognitive dysfunction in the elderly. ISPOCD1 study. IOPOCD investigators. International Study of Post Operative Cognitive Dysfunction. *Lancet* 1998;351:857-61.
43. Canet J, Raeder J, Rasmussen LS, et al. Cognitive dysfunction after minor surgery in the elderly. *Acta Anaesthesiol Scand* 2003;47:1204-10.
44. Liu S, Carpenter RL, Neal JM. Epidural anesthesia and analgesia. Their role in postoperative outcome. *Anesthesiology* 1995;82:1474-506.
45. Kehlet H. Surgical stress: the role of pain and analgesia. *Br J Anaesth* 1989;63:189-95.
46. Rosenfeld BA. Benefits of regional anaesthesia on thrombo-embolic complications following surgery. *Reg Anesth* 1996;21:9-12.
47. Rosenfeld BA, Beattie C, Christopherson R, et al. The Perioperative Ischaemia Randomized Anesthesia Trial Study Group: the effects of different anesthetic regimens on fibrinolysis and the development of postoperative arterial thrombosis. *Anesthesiology* 1993;79:435-43.
48. Kehlet H, Holte K. Effect of postoperative analgesia on surgical outcome. *Br J Anaesth* 2001;87:62-72.

49. Wu CL, Caldwell MD. Effect of post-operative analgesia on patient morbidity. *Best Pract Res Clin Anaesthesiol* 2002;16:549-63.
50. Davis FM, McDermott E, Hickton C, et al. Influence of spinal and general anaesthesia on haemostasis during total hip arthroplasty. *Br J Anaesth* 1987;59:561-71.
51. Valentin N, Lomholt B, Jensen JS, et al. Spinal or general anaesthesia for surgery of the fractured hip? *Br J Anaesth* 1986;58:284-91.
52. Bode RH, Lewis PL, Zarich SW, et al. Cardiac outcome after peripheral vascular surgery. Comparison of general and regional anesthesia. *Anesthesiology* 1996;84:3-13.
53. Tuman KJ, McCarthy RJ, Marck RJ, et al. Effects of epidural anesthesia and analgesia on coagulation and outcome after major vascular surgery. *Anesth Analg* 1991;73:696-704.
54. Park WY, Thompson JS, Lee KK. Effect on epidural anesthesia and analgesia on peri-operative outcome. A randomized, controlled veterans affairs cooperative study. *Ann Surg* 2001;234(4):560-71.
55. Donadoni R, Baele G, Devulder J, et al. Coagulation and fibrinolytic parameters in patients undergoing total hip replacement: influence of anaesthesia technique. *Acta Anaesthesiol Scand* 1989;33:588-92.
56. Modig J, Borg T, Karlström G, et al. Thromboembolism after total hip replacement: role of epidural and general anesthesia. *Anesth Analg* 1983;62:174-80.
57. Modig J, Borg T, Bagge L, et al. Role of extradural and of general anaesthesia in fibrinolysis and coagulation after total hip replacement. *Br J Anaesth* 1983;55:625-9.
58. Matot I, Oppenheim-Eden A, Ratrot R, et al. Preoperative cardiac events in elderly patients with hip fracture randomized to epidural or conventional analgesia. *Anesthesiology* 2003;98:156-63.
59. de Leon-Casasola OA, Parker BM, et al. Epidural analgesia versus intravenous patient-controlled analgesia: differences in the postoperative course of cancer patients. *Regional Anesthesia* 1994;19:307-15.
60. US Bureau of Census. *Statistical Abstracts of the United States*. 113th ed. Washington, DC: Department of Commerce; 1993
61. Kehlet H, Holte K. Review of postoperative ileus. *Am J Surg* 2001;182:3-10.