

BÖLÜM 8

Obezite ve Omurga Hastalıkları

Gökhan PEKER¹

Giriş

Obezite (vücut kütle indeksi (VKİ)>30Kg/m²), ciddi tıbbi ve finansal sonuçları olan bir pandemidir(1). Dünya sağlık örgütünün son raporuna göre, dünya çapında obezite 1975'ten bu yana neredeyse üç katına çıkmıştır. Dünyada aşırı kilolu yetişkin sayısı 1,9 milyardan fazla ve bu insanların 600 milyondan fazlası obezdir(2). Obezitenin vücutun tüm organlarına etkisi olduğu gibi kas ve iskelet sistemini de etkiler. Yüksek vücut ağırlığı özellikle eklemeler üzerinde basıncı artırarak erken dejenerasyona ve buna bağlı ağrı, hareket kısıtlılığı gibi semptomlara neden olabilir. Birden fazla eklemden oluşan ve günlük yaşantıda harekete katılım sağlayan omurga da obeziteden etkilenmektedir.

¹ Dr. Öğr. Üyesi, Sağlık Bilimleri Üniversitesi Trabzon Kanuni Sağlık Uygulama ve Araştırma Merkezi, Ortopedi ve Travmatoloji Kliniği, drgokhanpeker@gmail.com

etkilememesi nedeniyle preobez ve obez hastaların da minimal invazif girişimler için uygun adaylar olduğu şeklinde sonuç bildirilmiştir (58).

Sonuç

Obezite dünyada artarak devam etmektedir. Vücutta her sistemi etkilediği gibi omurgayı da etkilemektedir. Bu etki farklı mekanizma ve oranlar ile açıklansa da semptomlar ile kesin kurulmuş bir ilişki yoktur. Özellikle omurga hastalıkları nedeniyle ameliyat planlanan kişilerde artmış komplikasyon riski hastaya özellikle ifade edilmelidir. Tüm bu hastalıklar ve komplikasyonlar ile bunlara bağlı tedavi maliyetlerinin azaltılması için obezite ile mücadelede önem arz etmektedir.

Kaynaklar

1. Cannata F, Vadalà G, Ambrosio L, Fallucca S, Napoli N, Papalia R, et al. Intervertebral disc degeneration: A focus on obesity and type 2 diabetes. *Diabetes Metab Res Rev.* 2020;36(1):e3224.
2. WHO. Obesity and Overweight Fact Sheet. 2018 (Available from: <http://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.
3. Vadalà G, Russo F, Di Martino A, Denaro V. Intervertebral disc regeneration: from the degenerative cascade to molecular therapy and tissue engineering. *J Tissue Eng Regen Med.* 2015;9(6):679-90.
4. Molladavoodi S, McMorrin J, Gregory D. Mechanobiology of annulus fibrosus and nucleus pulposus cells in intervertebral discs. *Cell Tissue Res.* 2020;379(3):429-44.
5. Urban JP, McMullin JF. Swelling pressure of the intervertebral disc: influence of proteoglycan and collagen contents. *Biorheology.* 1985;22(2):145-57.
6. Bruehlmann SB, Rattner JB, Matyas JR, Duncan NA. Regional variations in the cellular matrix of the annulus fibrosus of the intervertebral disc. *J Anat.* 2002;201(2):159-71.
7. Pezowicz CA, Robertson PA, Broom ND. The structural basis of interlamellar cohesion in the intervertebral disc wall. *J Anat.* 2006;208(3):317-30.
8. Delgado-López PD, Castilla-Díez JM. (Impact of obesity in the pathophysiology of degenerative disk disease and in the morbidity and outcome of lumbar spine surgery). *Neurocirugia (Astur).* 2018;29(2):93-102.

9. Leboeuf-Yde C. Body weight and low back pain. A systematic literature review of 56 journal articles reporting on 65 epidemiologic studies. *Spine (Phila Pa 1976)*. 2000;25(2):226-37.
10. Janke EA, Collins A, Kozak AT. Overview of the relationship between pain and obesity: What do we know? Where do we go next? *J Rehabil Res Dev*. 2007;44(2):245-62.
11. Heuch I, Hagen K, Heuch I, Nygaard Ø, Zwart JA. The impact of body mass index on the prevalence of low back pain: the HUNT study. *Spine (Phila Pa 1976)*. 2010;35(7):764-8.
12. Jakoi AM, Pannu G, D'Oro A, Buser Z, Pham MH, Patel NN, et al. The Clinical Correlations between Diabetes, Cigarette Smoking and Obesity on Intervertebral Degenerative Disc Disease of the Lumbar Spine. *Asian Spine J*. 2017;11(3):337-47.
13. Takatalo J, Karppinen J, Taimela S, Niinimäki J, Laitinen J, Sequeiros RB, et al. Association of abdominal obesity with lumbar disc degeneration--a magnetic resonance imaging study. *PLoS One*. 2013;8(2):e56244.
14. Sharma A. The Role of Adipokines in Intervertebral Disc Degeneration. *Med Sci (Basel)*. 2018;6(2).
15. Molinos M, Almeida CR, Caldeira J, Cunha C, Gonçalves RM, Barbosa MA. Inflammation in intervertebral disc degeneration and regeneration. *J R Soc Interface*. 2015;12(108):20150429.
16. Miyagi M, Ishikawa T, Orita S, Eguchi Y, Kamoda H, Arai G, et al. Disk injury in rats produces persistent increases in pain-related neuropeptides in dorsal root ganglia and spinal cord glia but only transient increases in inflammatory mediators: pathomechanism of chronic diskogenic low back pain. *Spine (Phila Pa 1976)*. 2011;36(26):2260-6.
17. Deng X, Zhao F, Kang B, Zhang X. Elevated interleukin-6 expression levels are associated with intervertebral disc degeneration. *Exp Ther Med*. 2016;11(4):1425-32.
18. Olszanecka-Glinianowicz M, Zahorska-Markiewicz B, Janowska J, Zukrowski A. Serum concentrations of nitric oxide, tumor necrosis factor (TNF)-alpha and TNF soluble receptors in women with overweight and obesity. *Metabolism*. 2004;53(10):1268-73.
19. Liuke M, Solovieva S, Lamminen A, Luoma K, Leino-Arjas P, Luukkonen R, et al. Disc degeneration of the lumbar spine in relation to overweight. *Int J Obes (Lond)*. 2005;29(8):903-8.
20. Videman T, Gibbons LE, Kaprio J, Battie MC. Challenging the cumulative injury model: positive effects of greater body mass on disc degeneration. *Spine J*. 2010;10(1):26-31.
21. Samartzis D, Karppinen J, Chan D, Luk KD, Cheung KM. The association of lumbar intervertebral disc degeneration on magnetic resonance imaging with body mass index in overweight and obese adults: a population-based study. *Arthritis Rheum*. 2012;64(5):1488-96.

22. Xu X, Li X, Wu W. Association Between Overweight or Obesity and Lumbar Disk Diseases: A Meta-Analysis. *J Spinal Disord Tech.* 2015;28(10):370-6.
23. Dario AB, Ferreira ML, Refshauge K, Sánchez-Romera JF, Luque-Suarez A, Hopper JL, et al. Are obesity and body fat distribution associated with low back pain in women? A population-based study of 1128 Spanish twins. *Eur Spine J.* 2016;25(4):1188-95.
24. Sheng B, Feng C, Zhang D, Spitler H, Shi L. Associations between Obesity and Spinal Diseases: A Medical Expenditure Panel Study Analysis. *Int J Environ Res Public Health.* 2017;14(2).
25. Steele JR, Colman CE, McGhee DE. Effects of obesity on breast size, thoracic spine structure and function, upper torso musculoskeletal pain and physical activity in women. *J Sport Health Sci.* 2020;9(2):140-8.
26. Pan F, Firouzabadi A, Reitmaier S, Zander T, Schmidt H. The shape and mobility of the thoracic spine in asymptomatic adults - A systematic review of in vivo studies. *J Biomech.* 2018;78:21-35.
27. Li Y, Shi JJ, Ren J, Guan HS, Gao YP, Zhao F, et al. (Relationship between obesity and lumbar disc herniation in adolescents). *Zhongguo Gu Shang.* 2020;33(8):725-9.
28. Lee SY, Kim W, Lee SU, Choi KH. Relationship Between Obesity and Lumbar Spine Degeneration: A Cross-Sectional Study from the Fifth Korean National Health and Nutrition Examination Survey, 2010-2012. *Metab Syndr Relat Disord.* 2019;17(1):60-6.
29. Chou L, Brady SRE, Urquhart DM, Teichtahl AJ, Cicuttini FM, Pasco JA, et al. The Association Between Obesity and Low Back Pain and Disability Is Affected by Mood Disorders: A Population-Based, Cross-Sectional Study of Men. *Medicine (Baltimore).* 2016;95(15):e3367.
30. Teraguchi M, Yoshimura N, Hashizume H, Muraki S, Yamada H, Minamide A, et al. Prevalence and distribution of intervertebral disc degeneration over the entire spine in a population-based cohort: the Wakayama Spine Study. *Osteoarthritis Cartilage.* 2014;22(1):104-10.
31. Dario AB, Loureiro Ferreira M, Refshauge K, Luque-Suarez A, Ordoñana JR, Ferreira PH. Obesity does not increase the risk of chronic low back pain when genetics are considered. A prospective study of Spanish adult twins. *Spine J.* 2017;17(2):282-90.
32. Borenstein DG, O'Mara JW, Jr., Boden SD, Lauerman WC, Jacobson A, Platenberg C, et al. The value of magnetic resonance imaging of the lumbar spine to predict low-back pain in asymptomatic subjects : a seven-year follow-up study. *J Bone Joint Surg Am.* 2001;83(9):1306-11.
33. Kim H, Min TJ, Kang SH, Kim DK, Seo KM, Lee SY. Association Between Walking and Low Back Pain in the Korean Population: A Cross-Sectional Study. *Ann Rehabil Med.* 2017;41(5):786-92.

34. Cao JJ. Effects of obesity on bone metabolism. *J Orthop Surg Res.* 2011;6:30.
35. An Y, Li JN, Wang Y, Tian W, Li N. Association of overweight and obesity with vertebral fractures: a systematic review and meta-analysis. *Minerva Endocrinol (Torino).* 2021.
36. Li Y, Binkowski L, Grzywna A, Robbins CB, Caird MS, Farley FA, et al. Is Obesity in Adolescent Idiopathic Scoliosis Associated With Larger Curves and Worse Surgical Outcomes? *Spine (Phila Pa 1976).* 2017;42(3):E156-e62.
37. Valdovino AG, Bastrom TP, Reighard FG, Cross M, Bartley CE, Shah SA, et al. Obesity Is Associated With Increased Thoracic Kyphosis in Adolescent Idiopathic Scoliosis Patients and Nonscoliotic Adolescents. *Spine Deform.* 2019;7(6):865-9.
38. Gilbert SR, Savage AJ, Whitesell R, Conklin MJ, Fineberg NS. BMI and magnitude of scoliosis at presentation to a specialty clinic. *Pediatrics.* 2015;135(6):e1417-24.
39. Margalit A, McKean G, Constantine A, Thompson CB, Lee RJ, Sponseller PD. Body Mass Hides the Curve: Thoracic Scoliometer Readings Vary by Body Mass Index Value. *J Pediatr Orthop.* 2017;37(4):e255-e60.
40. Woods N, Wittmeier K, Mulder K, Dufault B, Black B. The Relationship Between Body Mass Index and the Magnitude of Curve at Diagnosis of Adolescent Idiopathic Scoliosis: A Retrospective Chart Review. *Orthop Res Rev.* 2022;14:149-55.
41. Bayartai ME, Schaer CE, Luomajoki H, Tringali G, De Micheli R, Sartorio A. Differences in spinal posture and mobility between children/adolescents with obesity and age-matched normal-weight individuals. *Sci Rep.* 2022;12(1):15570.
42. Ottesen TD, Malpani R, Galivanche AR, Zogg CK, Varthi AG, Grauer JN. Underweight patients are at just as much risk as super morbidly obese patients when undergoing anterior cervical spine surgery. *Spine J.* 2020;20(7):1085-95.
43. Cao J, Kong L, Meng F, Zhang Y, Shen Y. Impact of obesity on lumbar spinal surgery outcomes. *J Clin Neurosci.* 2016;28:1-6.
44. Auffinger B, Lam S, Kraninger J, Shen J, Roitberg BZ. The impact of obesity on surgeon ratings and patient-reported outcome measures after degenerative cervical spine disease surgery. *World Neurosurg.* 2014;82(1-2):e345-52.
45. Witek AM, Benzel EC. Obesity in cervical spine surgery. *World Neurosurg.* 2014;82(1-2):e147-8.
46. Bono OJ, Poorman GW, Foster N, Jalai CM, Horn SR, Oren J, et al. Body mass index predicts risk of complications in lumbar spine surgery based on surgical invasiveness. *Spine J.* 2018;18(7):1204-10.
47. Tarrant RC, Lynch S, Sheeran P, O'Loughlin PF, Harrington M, Moore DP, et al. Low body mass index in adolescent idiopathic scoliosis: relationship with pre- and postsurgical factors. *Spine (Phila Pa 1976).* 2014;39(2):140-8.

48. Narain AS, Hijji FY, Haws BE, Kudaravalli KT, Yom KH, Markowitz J, et al. Impact of body mass index on surgical outcomes, narcotics consumption, and hospital costs following anterior cervical discectomy and fusion. *J Neurosurg Spine*. 2018;28(2):160-6.
49. Mullen JT, Moorman DW, Davenport DL. The obesity paradox: body mass index and outcomes in patients undergoing nonbariatric general surgery. *Ann Surg*. 2009;250(1):166-72.
50. Basques BA, Khan JM, Louie PK, Mormol J, Heidt S, Varthi A, et al. Obesity does not impact clinical outcome but affects cervical sagittal alignment and adjacent segment degeneration in short term follow-up after an anterior cervical decompression and fusion. *Spine J*. 2019;19(7):1146-53.
51. Phan K, Kothari P, Lee NJ, Virk S, Kim JS, Cho SK. Impact of Obesity on Outcomes in Adults Undergoing Elective Posterior Cervical Fusion. *Spine (Phila Pa 1976)*. 2017;42(4):261-6.
52. Sridharan M, Malik AT, Kim J, Khan SN, Yu E. Does Increasing Body Mass Index Correlate with Adverse Outcomes Following Posterior Cervical Fusions? *World Neurosurg*. 2020;133:e789-e95.
53. Buerba RA, Fu MC, Grauer JN. Anterior and posterior cervical fusion in patients with high body mass index are not associated with greater complications. *Spine J*. 2014;14(8):1643-53.
54. McCormick ZL, Mattie R, Ebrahimi A, Lee DT, Marcolina A, Press J, et al. Is There a Relationship Between Body Mass Index and Fluoroscopy Time During Cervical Interlaminar Epidural Steroid Injections? *Pain Med*. 2017;18(7):1326-33.
55. Wilson JR, Tetreault LA, Schroeder G, Harrop JS, Prasad S, Vaccaro A, et al. Impact of Elevated Body Mass Index and Obesity on Long-term Surgical Outcomes for Patients With Degenerative Cervical Myelopathy: Analysis of a Combined Prospective Dataset. *Spine (Phila Pa 1976)*. 2017;42(3):195-201.
56. Lingutla KK, Pollock R, Benomran E, Purushothaman B, Kasis A, Bhatia CK, et al. Outcome of lumbar spinal fusion surgery in obese patients: a systematic review and meta-analysis. *Bone Joint J*. 2015;97-b(10):1395-404.
57. Giannadakis C, Nerland US, Solheim O, Jakola AS, Gulati M, Weber C, et al. Does Obesity Affect Outcomes After Decompressive Surgery for Lumbar Spinal Stenosis? A Multicenter, Observational, Registry-Based Study. *World Neurosurg*. 2015;84(5):1227-34.
58. Senker W, Stefanits H, Gmeiner M, Trutschnig W, Weinfurter I, Gruber A. Does Obesity Affect Perioperative and Postoperative Morbidity and Complication Rates After Minimal Access Spinal Technologies in Surgery for Lumbar Degenerative Disc Disease. *World Neurosurg*. 2018;111:e374-e85.

