

# BÖLÜM 11

## Multiple Skleroz Rehabilitasyonu

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### GİRİŞ

Multipl skleroz (MS), merkezi sinir sisteminin etiyojisi tam olarak anlaşılama-yan kronik inflamatuvar demiyelinizan bir hastalıdır. Hastalığın patolojisi ve semptomları ilk olarak 1868'de Jean-Martin Charcot tarafından tanımlanmıştır (1).

Multiple skleroz genç ve orta yaşlı bireyleri etkileyen kronik nörolojik özür-lülüğe yol açan en sık nedenlerden biridir. Hastalık insidansının coğrafik enlem ile ilişkisi olduğu, insidansın enlem yükseldikçe arttığı ve ekvatora yaklaştıkça MS vakalarının sayısının azaldığı belirtilmektedir. Hastalığın prevalansı ekvator bölgelerinde 1/100.000'in altındadır ve yapılan araştırmalar en yüksek prevalans bölgelerinin Avrupa, Kuzey Amerika, Güney Avustralya ve Yeni Zelanda olduğunu göstermektedir. Bununla birlikte dünyada yaklaşık 2,5 milyon MS tanılı has-tanın bulunduğu ve dünya çapında sayılarının gittikçe arttığı bilinmektedir (1,2).

Hastalığın kliniğini oluşturan demiyelinizan lezyonların oluşumunda çevresel ve genetik faktörlerin yanı sıra otoimmün süreçlerin anahtar rol oynadığı dü-şünülmektedir. Hastalığın patofizyolojisine yönelik araştırmalar demiyelinizan değişikliklerin özellikle serebral korteks ve gri maddede ve ayrıca bazal nukleus ve serebellar kortekste olduğunu göstermiştir (3). Bununla birlikte hastalığın hem

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## KAYNAKLAR

1. Tunali G. Epidemiyoloji. Türkiye Klinikleri J Neur 2004;2:161-5.
2. Ebers G, Sadovnic AD. The geographic distribution of multiple sclerosis: A review. *Neuroepidemiology* 1993;12:1-5.
3. Vercellino M, Masera S, Lorenzatti M, et al. Demyelination, inflammation, and neurodegeneration in multiple sclerosis deep gray matter. *J Neuropathol Exp Neurol*. 2009;68(5):489-502.
4. Trapp BD, Peterson J, Ransohoff RM, et al. Axonal transection in the lesions of multiple sclerosis. *N Engl J Med* 1998;338:278-85.
5. Stadelmann C, Albert M, Wegner C, Bruck W. Cortical pathology in multiple sclerosis. *Curr Opin Neurol*. 2008;21:229-234.
6. Meinly E, Hohlfeld R. Immunopathogenesis of multiple sclerosis:MBP and beyond. *Clin Exp Immunol* 2002;128:395-7.
7. Selmaj KW, Raine CS. Tumor necrosis factor mediates myelin and oligodendrocyte damage in vitro. *Ann Neurol* 1988;23:339-46.
8. Turhan N, Bayramoğlu M. Multiple skleroz. In: Oğuz H, Dursun E, Dursun N, editörler Tıbbi Rehabilitasyon. Ankara: Nobel Tıp Kitabevleri; 2004. p.649-63.
9. Tunali G. Multiple skleroz'da tanı kriterleri. Türkiye Klinikleri J Neur 2004;2:205-9.
10. Kesselring J. Neurorehabilitation in multiple sclerosis-what is the evidence-base? *J Neurol* 2004;251:25-9.
11. Braley TJ, Chervin RD. Fatigue in multiple sclerosis: mechanisms, evaluation, and treatment. *Sleep*. 2010. August;33(8):1061-7.
12. Vucic S, Burke D, Kiernan MC. Fatigue in multiple sclerosis: mechanisms and management. *Clin Neurophysiol*. 2010. June;121(6):809-17.
13. Strober LB, Christodoulou C, Benedict RH, et al. Unemployment in multiple sclerosis: the contribution of personality and disease. *Mult Scler*. 2012. May;18(5):647-53.
14. Smith MM, Arnett PA. Factors related to employment status changes in individuals with multiple sclerosis. *Mult Scler*. 2005. October;11(5):602-9.
15. Branas P, Jordan R, Fry-Smith A, et al. Treatments for fatigue in multiple sclerosis: A rapid and systematic review. *Health Technol Assess* 2000;4:1-61.
16. Navipour H, Madani H, Mohebbi MR, et al. Improved fatigue in individuals with multiple sclerosis after participating in a short-term self-care program. *NeuroRehabilitation* 2006;21:37-41.
17. Kessekring J, Beer S. Symptomatic therapy and Neurorehabilitation in multiple sclerosis. *Lancet Neurol* 2005;4:643-52.
18. Krupp LB. Mechanisms Measurement and Management of Fatigue in Multiple Sclerosis; Recent Advances. *Multiple Sclerosis: Clinical Challenges and Controversies* (Thompson A, Polman C, Hohlfeld R, eds) London, Martin Dunitz Ltd Yayın.; 1997: 283-294
19. Clanet MG, Azais-Vuillemin C. What is New in the Symptomatic Management of Multiple Sclerosis?; Recent Advances. *Multiple Sclerosis: Clinical Challenges and Controversies* (Thompson A, Polman C, Hohlfeld R, eds) London, Martin Dunitz Ltd Yayın.; 1997: 235-242.
20. Bavikatte G, Gaber T. Approach to spasticity in general practice. *Br. J. Med. Pract.* 2009; 2(3), 29-34.
21. Haas J. Pathophysiology, assessment and management of multiple sclerosis spasticity: an update *Expert Rev. Neurother.* 2011; 11(4 Suppl. 1), 3-8
22. Shakespeare D, Boggild M, Young CA. Anti-spasticity agents for multiple sclerosis. *Cochrane Database Syst. Rev.* 2003; 4, CD001332.
23. Beard S, Hunn A, Wight J. Treatments for spasticity and pain in multiple sclerosis: a systematic review. *Health Technol. Assess.* 2003; 7(40),1-111.
24. Hugos CL, Cameron MH. MS Spasticity: Take Control (STC) for ambulatory adults: protocol for a randomized controlled trial. 2020 Oct 7;20(1):368.
25. Khan F, Amatya B, Stokes LT. Symptomatic therapy and rehabilitation in primary progressive multiple sclerosis. *Neurol Res Int*. 2011; 2011: 740505.

26. Makhoul K, Ahdab R, Riachi N et al. Tremor in Multiple Sclerosis-An Overview and Future Perspectives. *Brain Sci.* 2020 Oct; 10(10): 722.
27. Thompson AJ. Progress in neurorehabilitation in multiple sclerosis. *Curr Opin Neurol* 2002;15:267-70.
28. Betts CD, D'Mellow MT, Foeler CJ; Urinary symptoms and neurological features of bladder dysfunction in multiple sclerosis, *J Neurol Neurosurg Psychiatry.* 1993 Mar; 56 (3) :45-50.
29. Chia YW, Fowler CJ, Kamm MA, et al; Prevalence of bowel dysfunction in patients with multiple sclerosis and bladder dysfunction. *Jneurol.* 1995 Jan; 242(2):105-8.
30. Şendür ÖF, Taşçı Bozbaş G. Multiple skleroz tedavi ve rehabilitasyonu.Nörolojik hastalıkların rehabilitasyonu. Göksoy T. İstanbul. İstanbul Tıp Kitabevi. 2017;1 81-96.
31. Fjorback MV, Rijkhoff N, Petersen T, et al. Event driven electrical stimulation of the dorsal penile/clitoral nerve for management of neurogenic detrusor overactivity in multiple sclerosis. *NeuroUrol Urodyn* 2006;25:349-55.
32. McClurg D, Ashe RG, Marshall K, et al. Comparison of pelvic floor muscle training, electromyography biofeedback, and neuromuscular electrical stimulation for bladder dysfunction in people with multiple sclerosis: A randomized pilot study. *NeuroUrol Urodyn* 2006;25:337-48.
33. Delisa JA; Physical medicine and rehabilitation: principles and practice. In: Kraft GH, Chui JY, eds. *Multiple sclerosis.* Philadelphia. Lippincott Williams&Wilkins, 2005:1753-1769.
34. Crayton H, Heyman RA, Rossman HS.; A multimodal approach to managing the symptoms of multiple sclerosis. *Neurology* 2004; 63(11 suppl 5) s12-18.
35. Rousseaux M, Perennou D. Comfort care in severely disabled multiple sclerosis patients. *J Neurol Sci* 2004;222:39-48.
36. Nodder D, Chappell B, Bates D, et al. Multiple sclerosis: care need for 2000 and beyond. *J R Soc Med* 2000;93:219-24.
37. Stenager E,Knudsen L, Jensen K; Acuteand chronic pain syndromes in multiple sclerosis. *Acta Neurol Scand.* 1991 Sep; 84(3):197-200.
38. Donze C, Massot C. Rehabilitation in multiple sclerosis in 2021. *Presse Med.* 2021 Jun;50(2):104066
39. Chen MH, Chiravallotti ND, Deluca J. Neurological update: cognitive rehabilitation in multiple sclerosis. *J Neurol* 2021 Dec;268(12):4908-4914.
40. Yang CC; Sexual dysfunction in MS: common electrodiagnostic findings. *Int J MS Care* 2002;4(2):79-80.
41. Zorzon M, Zivadinov R, Bosco A, et al; Axual dysfunction in multiple sclerosis: a case-control study.I. Frequency and comparison of groups. *Mult Scler* 1999;5: 418-27.
42. Foley F, Saunders A.; Sexuality, multiple sclerosis and woman. *MS Manage* 1997;4(1):1-10.
43. Bobholz JA, Rao SM. Cognitive dysfunction in multiple sclerosis: a review of recent developments. *Curr Opin Neurol* 2003;16:283-8.
44. Gilchrist AC, Creed FH.; Depression, cognitive impairment and social stres in multiple sclerosis. *JPsychosom Res* 1994; 38: 193-201.
45. Nodder D, Chappell B, Bates D, et al. Multiple sclerosis: care need for 2000 and beyond. *J R Soc Med* 2000;93:219-24.
46. Hauser SL, Cree CAB. Treatment of Multiple Sclerosis: A Review. *Am J Med* 2020 Dec;133(12):1380-1390.
47. Gosselink R, Kovacs L, Ketelaer P, et al. Respiratory muscle weakness and respiratory muscle training in severely disabled multiple sclerosis patients. *Arch Phys Med Rehabil* 2000; 81: 747-51.
48. Taşçıoğlu F. Multiple skleroz ve rehabilitasyonu. *Türkiye Klinikleri J Int Med Sci* 2007, 3(10)
49. Motl R. Exercise and Multiple Sclerosis. *Adv Exp Med Biol* 2020;1228:333-343.
50. Kubsik-Gidlewska A , Klimkiewicz P, Klimkiewicz R et all. Rehabilitation in multiple sclerosis. *Adv Clin Exp Med.* 2017 Jul;26(4):709-715
51. Polman CH, O'Connor PW, Havrdova E, et al. A randomized, placebo-controlled trial of natalizumab for relapsing multiple sclerosis. *N Engl J Med* 2006;354:899-910.
52. Gibson J, Frank A. Supporting individuals with disabling multiple sclerosis. *J R Soc Med* 2002;95:580-6.