

SEREBRAL PALSİYE KLİNİK YAKLAŞIM

1. BÖLÜM

Elif Acar ARSLAN¹

Serebral palsi, gelişmekte olan beyinde, intrauterin dönemde veya yaşamın ilk aylarında lezyon veya zedelenme sonucu oluşan, hareket ve postürde kısıtlamaya neden olan motor fonksiyon kaybı, postür ve hareketteki bozulmadır (1). Hasar, prenatal, perinatal ve postnatal olarak gerçekleşebilir. İlerleyici ve dejeneratif beyin lezyonlarını kapsamaz. Hastalık kendi başına progresif olmamakla birlikte, santral sistemdeki maturasyon ile birlikte klinik yansımaları zamanla değişebilir. Hastlığın insidansı 1000 canlı doğumda 2-3 arasındadır. Prematürite ve düşük doğum ağırlığı önemli risk faktörleri arasındadır. Bunun yanı sıra maternal infeksiyonlar, çoklu doğumlar gibi diğer faktörler de önemlidir (2). Motor defisit, aktivitelerdeki ve fonksiyonel hareketlerdeki limitasyonlar ile kendini gösterir (Resim 1).

Duyu ve algılamadaki bozukluklar, bilişsel yetersizlik, iletişim ve davranışsal sorunlar, nöbet geçirme, kas ve iskelet sistemi komplikasyonları bulunabilir.

Motor defisit, fonksiyonel kısıtlılıklara neden olur. Birçok olguda sorun, gelişmekte olan fetal beyindeki erken dönem hasarlardan (intraserebral kanama, periventriküler lökomalazi gibi) kaynaklanır (3). Bir çalışmada ise bu sıklık %88.3 bulunmuştur. En sık görülen kranial görüntüleme bulguları periventriküler beyaz cevher değişikliği (% 42.5), bazal ganglion hasarı (% 12.8), kortikal ve subkortikal hasardır (% 9.4) (4).

¹ Doç. Dr. Karadeniz Teknik Üniversitesi Tıp Fakültesi, Çocuk Sağlığı ve Hastalıkları AD,
Çocuk Nöroloji BD

anormallikler, kas güçsüzlüğünden kaynaklanan hipoventilasyon durumları da çocukların uykuya bozukluklarına yol açmaktadır. Bunlar da bu olgularda yaşam kalitesini önemli ölçüde etkiler (13).

KAYNAKLAR

1. Jindal P, Macdermid JC, Rosenbaum P, Direnze B, Narayan A, Nayak SL. Treatment and rehabilitation of children with cerebral palsy in India: a scoping review. *Dev Med Child Neurol.* 2019 Sep;61(9):1050-1060.
2. Patel DR, Neelakantan M, Pandher K, Merrick J. Cerebral palsy in children: a clinical overview. *Transl Pediatr.* 2020 Feb;9 (Suppl 1):S125-S135.
3. Robinson MN, Peake LJ, Ditchfield MR, Reid SM, Lanigan A, Reddihough DS. Magnetic resonance imaging findings in a population-based cohort of children with cerebral palsy. *Dev Med Child Neurol.* 2009 Jan;51(1):39-45.
4. Bax M, Tydeman C, Flodmark O. Clinical and MRI correlates of cerebral palsy: the European Cerebral Palsy Study. *JAMA* 2006;296: 1602–08.).
5. Lesný I, Stehlík A, Tomásek J, et al. Sensory disorders in cerebral palsy: two-point discrimination. *Dev Med Child Neurol* 1993; 35:402.
6. Freud S. Die Infantile Cerebrallähmung. In: Specielle Pathologie und Therapie, Nothnagel S (Ed), Holder, Vienna 1897. p.1.
7. Cazauvieilh JB. Recherches sur l'agenesie cerebrale et le paralysie congenitale. *Arch Gen Med* 1827; 14:5.
8. Cooper J, Majnemer A, Rosenblatt B, Birnbaum R. The determination of sensory deficits in children with hemiplegic cerebral palsy. *J Child Neurol* 1995; 10:300.
9. Himmelmann K, Beckung E, Hagberg G, Uvebrant P. Gross and fine motor function and accompanying impairments in cerebral palsy. *Dev Med Child Neurol* 2006; 48:417.
10. Odding E, Roebroeck ME, Stam HJ. The epidemiology of cerebral palsy: incidence, impairments and risk factors. *Disabil Rehabil* 2006; 28:183.
11. Novak I, Morgan C, Adde L, et al. Early, Accurate Diagnosis and Early Intervention in Cerebral Palsy: Advances in Diagnosis and Treatment. *JAMA Pediatr* 2017; 171:897.
12. Foley J. Physical aspects. In: *Cerebral Palsy and the Young Child*, Blencowe SM (Ed), E&S Livingstone, London 1969. p.15.
13. Glader L, Barkoudah E. <https://www.uptodate.com/contents/cerebral-palsy-clinical-features-and-classification>.
14. Velde A, Morgan C, Novak I, Tantis E, Badawi N. Early Diagnosis and Classification of Cerebral Palsy: An Historical Perspective and Barriers to an Early Diagnosis. *J Clin Med.* 2019 Oct 3;8(10).
15. MacLennan A.H., Lewis S., Moreno-De-Luca A., Fahey M., Leventer R.J., McIntyre S., Ben-Pazi H., Corbett M., Wang X., Baynam G., et al. Genetic or other causation should not change the clinical diagnosis of cerebral palsy. *J. Child Neurol.* 2019;34:472–476.
16. Ashwal S, Russman BS, Blasco PA, et al. Practice parameter: diagnostic assessment of the child with cerebral palsy: report of the Quality Standards Subcom-

- mittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society. *Neurology* 2004; 62:851.
- 17. Novak I, Hines M, Goldsmith S, Barclay R. Clinical prognostic messages from a systematic review on cerebral palsy. *Pediatrics* 2012; 130:e1285.
 - 18. Reid SM, Meehan EM, Arnup SJ, Reddihough DS. Intellectual disability in cerebral palsy: a population-based retrospective study. *Dev Med Child Neurol* 2018; 60:687.
 - 19. Bagnato SJ, Campbell TF. Comprehensive neurodevelopmental evaluation of children with brain insults. In: *Static Encephalopathies of Infancy and Childhood*, Miller G, Ranier JC (Eds), Raven, New York 1992. p.27.
 - 20. Bjorgaas HM, Hysing M, Elgen I. Psychiatric disorders among children with cerebral palsy at school starting age. *Res Dev Disabil* 2012; 33:1287.
 - 21. Gabis LV, Tsubary NM, Leon O, et al. Assessment of Abilities and Comorbidities in Children With Cerebral Palsy. *J Child Neurol* 2015; 30:1640.
 - 22. Christensen D, Van Naarden Braun K, Doernberg NS, et al. Prevalence of cerebral palsy, co-occurring autism spectrum disorders, and motor functioning - Autism and Developmental Disabilities Monitoring Network, USA, 2008. *Dev Med Child Neurol* 2014; 56:59.
 - 23. Wilmshurst JM, Ibekwe RC, O'Callaghan FJ. Epileptic spasms - 175 years on: Trying to teach an old dog new tricks. *Seizure* 2017; 44:81.
 - 24. Schenk-Rootlieb AJ, van Nieuwenhuizen O, van der Graaf Y, et al. The prevalence of cerebral visual disturbance in children with cerebral palsy. *Dev Med Child Neurol* 1992; 34:473.
 - 25. Ego A, Lidzba K, Brovedani P, et al. Visual-perceptual impairment in children with cerebral palsy: a systematic review. *Dev Med Child Neurol* 2015; 57 Suppl 2:46.
 - 26. Colver A, Fairhurst C, Pharoah PO. Cerebral palsy. *Lancet* 2014; 383:1240.
 - 27. Buckley E, Seaber JH. Dyskinetic strabismus as a sign of cerebral palsy. *Am J Ophthalmol* 1981; 91:652.
 - 28. Jan JE, Lyons CJ, Heaven RK, Matsuba C. Visual impairment due to a dyskinetic eye movement disorder in children with dyskinetic cerebral palsy. *Dev Med Child Neurol* 2001; 43:108.
 - 29. Lew H, Lee HS, Lee JY, et al. Possible linkage between visual and motor development in children with cerebral palsy. *Pediatr Neurol* 2015; 52:338.
 - 30. Pennefather PM, Tin W. Ocular abnormalities associated with cerebral palsy after preterm birth. *Eye (Lond)* 2000; 14 (Pt 1):78.
 - 31. Nordberg A, Miniscalco C, Lohmander A, Himmelmann K. Speech problems affect more than one in two children with cerebral palsy: Swedish population-based study. *Acta Paediatr* 2013; 102:161.
 - 32. Zhang JY, Oskoui M, Shevell M. A population-based study of communication impairment in cerebral palsy. *J Child Neurol* 2015; 30:277.
 - 33. Mei C, Reilly S, Reddihough D, et al. Language outcomes of children with cerebral palsy aged 5 years and 6 years: a population-based study. *Dev Med Child Neurol* 2016; 58:605.
 - 34. Brooks J, Day S, Shavelle R, Strauss D. Low weight, morbidity, and mortality in children with cerebral palsy: new clinical growth charts. *Pediatrics* 2011; 128:e299.

35. Dahl M, Thommessen M, Rasmussen M, Selberg T. Feeding and nutritional characteristics in children with moderate or severe cerebral palsy. *Acta Paediatr* 1996; 85:697.
36. Reilly S, Skuse D, Poblete X. Prevalence of feeding problems and oral motor dysfunction in children with cerebral palsy: a community survey. *J Pediatr* 1996; 129:877.
37. Andrew MJ, Parr JR, Sullivan PB. Feeding difficulties in children with cerebral palsy. *Arch Dis Child Educ Pract Ed* 2012; 97:222.
38. Reilly S, Skuse D, Poblete X. Prevalence of feeding problems and oral motor dysfunction in children with cerebral palsy: a community survey. *J Pediatr* 1996; 129:877.
39. Sullivan PB, Lambert B, Rose M, et al. Prevalence and severity of feeding and nutritional problems in children with neurological impairment: Oxford Feeding Study. *Dev Med Child Neurol* 2000; 42:674.
40. Del Giudice E, Staiano A, Capano G, et al. Gastrointestinal manifestations in children with cerebral palsy. *Brain Dev* 1999; 21:307.
41. Erasmus CE, van Hulst K, Rotteveel JJ, et al. Clinical practice: swallowing problems in cerebral palsy. *Eur J Pediatr* 2012; 171:409.
42. Erkin G, Culha C, Ozel S, Kirbiyik EG. Feeding and gastrointestinal problems in children with cerebral palsy. *Int J Rehabil Res* 2010; 33:218.
43. Stallings VA, Charney EB, Davies JC, Cronk CE. Nutrition-related growth failure of children with quadriplegic cerebral palsy. *Dev Med Child Neurol* 1993; 35:126.
44. Veugelers R, Benninga MA, Calis EA, et al. Prevalence and clinical presentation of constipation in children with severe generalized cerebral palsy. *Dev Med Child Neurol* 2010; 52:e216.
45. Spiroglou K, Xinias I, Karatzas N, et al. Gastric emptying in children with cerebral palsy and gastroesophageal reflux. *Pediatr Neurol* 2004; 31:177.
46. Parkes J, Hill N, Platt MJ, Donnelly C. Oromotor dysfunction and communication impairments in children with cerebral palsy: a register study. *Dev Med Child Neurol* 2010; 52:1113.
47. Reddihough DS, Baikie G, Walstab JE. Cerebral palsy in Victoria, Australia: mortality and causes of death. *J Paediatr Child Health* 2001; 37:183.
48. Flynn JM, Miller F. Management of hip disorders in patients with cerebral palsy. *J Am Acad Orthop Surg* 2002; 10:198.
49. McCarthy JJ, D'Andrea LP, Betz RR, Clements DH. Scoliosis in the child with cerebral palsy. *J Am Acad Orthop Surg* 2006; 14:367.
50. Chad KE, McKay HA, Zello GA, et al. Body composition in nutritionally adequate ambulatory and non-ambulatory children with cerebral palsy and a healthy reference group. *Dev Med Child Neurol* 2000; 42:334.
51. Henderson RC, Lark RK, Gurka MJ, et al. Bone density and metabolism in children and adolescents with moderate to severe cerebral palsy. *Pediatrics* 2002; 110:e5.
52. Cohen M, Lahat E, Bistritzer T, et al. Evidence-based review of bone strength in children and youth with cerebral palsy. *J Child Neurol* 2009; 24:959.
53. Mergler S, Evenhuis HM, Boot AM, et al. Epidemiology of low bone mineral density and fractures in children with severe cerebral palsy: a systematic review. *Dev*

- Med Child Neurol 2009; 51:773.
- 54. Henderson RC, Kairalla JA, Barrington JW, et al. Longitudinal changes in bone density in children and adolescents with moderate to severe cerebral palsy. J Pediatr 2005; 146:769.
 - 55. Dechter RM, Bauer SB, Khoshbin S, et al. Urodynamic assessment of children with cerebral palsy. J Urol 1987; 138:1110.
 - 56. Murphy KP, Boutin SA, Ide KR. Cerebral palsy, neurogenic bladder, and outcomes of lifetime care. Dev Med Child Neurol 2012; 54:945.
 - 57. Silva JA, Gonsalves Mde C, Saverio AP, et al. Lower urinary tract dysfunction and ultrasound assessment of bladder wall thickness in children with cerebral palsy. Urology 2010; 76:942.
 - 58. Roijen LE, Postema K, Limbeek VJ, Kuppevelt VH. Development of bladder control in children and adolescents with cerebral palsy. Dev Med Child Neurol 2001; 43:103.
 - 59. Richardson I, Palmer LS. Clinical and urodynamic spectrum of bladder function in cerebral palsy. J Urol 2009; 182:1945.
 - 60. Penner M, Xie WY, Binepal N, et al. Characteristics of pain in children and youth with cerebral palsy. Pediatrics 2013; 132:e407.
 - 61. Arnaud C, White-Koning M, Michelsen SI, et al. Parent-reported quality of life of children with cerebral palsy in Europe. Pediatrics 2008; 121:54.
 - 62. Colver A, Rapp M, Eisemann N, et al. Self-reported quality of life of adolescents with cerebral palsy: a cross-sectional and longitudinal analysis. Lancet 2015; 385:705.
 - 63. Findlay B, Switzer L, Narayanan U, et al. Investigating the impact of pain, age, Gross Motor Function Classification System, and sex on health-related quality of life in children with cerebral palsy. Dev Med Child Neurol 2016; 58:292.