

DİZ AĞRILARINDA LABORATUVAR BULGULARI

Çağlar KARABAŞ¹

GİRİŞ

Diz eklemi, yük taşıyan, yürüken stabiliteden ve dengeden sorumlu olan bir yapıdır. Diz ekleminin travmalara açık olması ve dejeneratif hasarın sık görülmesi nedeniyle günlük pratikte diz ağrısı şikayeti ile sıkılıkla karşılaşmaktadır. Diz ağrısı nedenleri; artiküler, periartiküler, osseöz nedenler ve yansıyan ağrılar olarak sınıflandırılabilir. Diz ağrısı altı haftadan kısa ise akut ya da subakut ağrı, altı haftadan uzun ise kronik ağrı olarak sınıflandırılır. Akut diz ağrısı nedenleri, sıkılıkla travmaya maruz kalma sonucunda görülmekteyken; kronik nedenler dejeneratif eklem hasarına bağlı ve/veya romatolojik hastalıklara bağlı olarak görülebilmektedir. Diz ağrısı ile gelen hastada tanıda anamnez ve fizik muayene önemli bir yer tutmaktadır (1, 2). Ancak diz ağrısı nedenlerinin ayırcı tanısı için laboratuvar ve görüntüleme yöntemlerinden yararlanmak gerekebilir. Ayırcı tanıda, tanışal testlerin pozitif veya negatif olması, travmaya bağlı olup olmadığı, akut ya da kronik olması, romatizmal hastlığın kendisinde ya da ailesinde olması istenilecek görüntüleme yönteminin ve laboratuvar tetkiklerinin seçiminde bizlere fikir verir. Görüntüleme yöntemi olarak, konvansiyonel radyografi, Manyetik Rezonans Görüntüleme (MRG), Bilgisayarlı Tomografi (BT) ve son zamanlarda kas iskelet sistemi hastalıklarının tanı ve tedavisinde sıkılıkla

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kısa kolundaki MEFV geninde mutasyonlar vardır. En sık görülen mutasyonlar M694V, V726A, M694I, M680I ve E148Q şeklindedir(59, 60). Diz tutulumu ile gelen bir hastada FMF'ten şüphelenildiğinde, akut faz reaktanları ile genetik mutasyonlar için gen analizine bakmak tanıda bizlere yardımcı olur. Ancak %10-20 hastada gen analizi normal olabileceğiinden, klinik muayene, laboratuvar ile desteklenerek tanı ve ayırıcı tanı hakkında sonuca varılmalıdır (61).

KAYNAKLAR

1. Calmbach WL, Hutchens M. Evaluation of patients presenting with knee pain: Part I. History, physical examination, radiographs, and laboratory tests. American family physician. 2003;68(5):907-12.
2. Beutler A, Fields KB. Approach to the adult with knee pain likely of musculoskeletal origin. UpToDate; 2018.
3. Calmbach WL, Hutchens M. Evaluation of patients presenting with knee pain: Part II. Differential diagnosis. American family physician. 2003;68(5):917-22.
4. Barišić I, Ljutić D, Vlak T, Bekavac J, Janković S. Laboratory and sonographic findings in dialyzed patients with bilateral chronic knee pain versus dialyzed asymptomatic patients. Collegium antropologicum. 2007;31(2):489-94.
5. Weiss G, Goodnough LT. Anemia of chronic disease. New England Journal of Medicine. 2005;352(10):1011-23.
6. Weiss G, Ganz T, Goodnough LT. Anemia of inflammation. Blood, The Journal of the American Society of Hematology. 2019;133(1):40-50.
7. Chen Y, Xu W, Yang H, Shao M, Xu S, Deng J, et al. Serum Levels of Hepcidin in Rheumatoid Arthritis and Its Correlation with Disease Activity and Anemia: A Meta-analysis. Immunological investigations. 2021;50(2-3):243-58.
8. Hushmendy SF, Cushner FD. Avoiding complications associated with anemia following total joint arthroplasty. Techniques in Orthopaedics. 2019;34(3):146-54.
9. Mowat AG, editor Hematologic abnormalities in rheumatoid arthritis. Seminars in arthritis and rheumatism; 1972: Elsevier.
10. Chauhan K, Jandu JS, Goyal A, Bansal P, Al-Dahir MA. Rheumatoid Arthritis. StatPearls. Treasure Island (FL): StatPearls Publishing Copyright © 2021, StatPearls Publishing LLC.; 2021.
11. Lavoignet C-E, Le Borgne P, Chabrier S, Bidoire J, Slimani H, Chevrolet-Lavoignet J, et al. White blood cell count and eosinopenia as valuable tools for the diagnosis of bacterial infections in the ED. European Journal of Clinical Microbiology & Infectious Diseases. 2019;38(8):1523-32.
12. Bunt CW, Jonas CE, Chang JG. Knee pain in adults and adolescents: the initial evaluation. American family physician. 2018;98(9):576-85.
13. Brunger AF, Nienhuis HL, Bijzet J, Hazenberg BP. Causes of AA amyloidosis: a systematic review. Amyloid. 2020;27(1):1-12.

14. Marcucci E, Bartoloni E, Alunno A, Leone M, Cafaro G, Luccioli F, et al. Extra-articular rheumatoid arthritis. *Reumatismo*. 2018;70(4):212-24.
15. Du T, Liu X, Ye W, Ye W, Li C. Primary Sjögren syndrome-associated acute interstitial nephritis and type 3 renal tubular acidosis in a patient with thin basement membrane nephropathy: A case report. *Medicine*. 2020;99(32).
16. Kenkre J, Bassett J. The bone remodelling cycle. *Annals of clinical biochemistry*. 2018;55(3):308-27.
17. Treager C, Isales C. Osteomalacia and rickets. *Orthopedic Surgery Clerkship*: Springer; 2017. p. 743-8.
18. Terpos E, Ntanasis-Stathopoulos I, Gavriatopoulou M, Dimopoulos MA. Pathogenesis of bone disease in multiple myeloma: from bench to bedside. *Blood cancer journal*. 2018;8(1):1-12.
19. Jayaramaiah A, Kemp AK, Theetha Kariyanna P. Bone Metastasis. *StatPearls*. Treasure Island (FL): StatPearls Publishing Copyright © 2021, StatPearls Publishing LLC.; 2021.
20. Robinson PC. Gout–An update of aetiology, genetics, co-morbidities and management. *Maturitas*. 2018;118:67-73.
21. Schlesinger N. Diagnosis of gout: clinical, laboratory, and radiologic findings. *Am J Manag Care*. 2005;11(15 Suppl):S443-50.
22. Zamora EA, Naik R. Calcium Pyrophosphate Deposition Disease. *StatPearls*. Treasure Island (FL): StatPearls Publishing Copyright © 2021, StatPearls Publishing LLC.; 2021.
23. Gulhar R, Ashraf MA, Jialal I. Physiology, acute phase reactants. 2018.
24. Kushner I. Acute phase reactants. *UpToDate* [Internet] Waltam, MA. 2015.
25. Kushner I, Rzewnicki DL. The acute phase response: general aspects. *Bailliere's clinical rheumatology*. 1994;8(3):513-30.
26. Black S, Kushner I, Samols D. C-reactive protein. *Journal of Biological Chemistry*. 2004;279(47):48487-90.
27. Barreto V, Isaac A, Bhimidi P, Nguyen C, Jones G. Trends of C-reactive protein laboratory values with white blood cell count levels in maxillofacial infections. *Journal of Oral and Maxillofacial Surgery*. 2013;71(9):e31-e2.
28. Sack GH. Serum amyloid A—a review. *Molecular Medicine*. 2018;24(1):1-27.
29. Steel DM, Whitehead AS. The major acute phase reactants: C-reactive protein, serum amyloid P component and serum amyloid A protein. *Immunology today*. 1994;15(2):81-8.
30. Chen M, Wu Y, Jia W, Yin M, Hu Z, Wang R, et al. The predictive value of serum amyloid A and C-reactive protein levels for the severity of coronavirus disease 2019. *American journal of translational research*. 2020;12(8):4569.
31. Gümüş A, Coşkun C, Emre HÖ, Temel M, İnal BB, Seval H, et al. Eklem Şişliği Olan ve Olmayan Romatoid Artritli Hastalarda Vasküler Endoteliyal Büyüme Faktörü Düzeyleri ve Eritrosit Sedimantasyon Hızı, C-Reaktif Protein ve Anti-Siklik Sitrülinlenmiş Protein Düzeyleri ile Karşılaştırılması. *Turk J Biochem*. 2018;43(1):76-82.
32. Beşik SK. ERİTROSİT SEDİMENTASYON HİZI. *Nobel Medicus Journal*. 2005;1(1).
33. Luyendyk JP, Schoenecker JG, Flick MJ. The multifaceted role of fibrinogen in tissue injury and inflammation. *Blood, The Journal of the American Society of Hematology*. 2019;133(6):511-20.

34. Sharif K, Vieira Borba V, Zandman-Goddard G, Shoenfeld Y. Eppur Si Muove: ferritin is essential in modulating inflammation. *Clinical & Experimental Immunology*. 2018;191(2):149-50.
35. Ernst AA, Weiss SJ, Tracy L-A, Weiss NR. Usefulness of CRP and ESR in predicting septic joints. *Southern medical journal*. 2010;103(6):522-6.
36. Feinberg T, Sambamoorthi U, Lilly C, Innes KK. Potential mediators between fibromyalgia and C-reactive protein: Results from a Large US Community Survey. *BMC musculoskeletal disorders*. 2017;18(1):1-12.
37. Özel A, Demirtürk L, Yazgan Y, Avşar K, Günay A, Gürbüz A, et al. Familial Mediterranean fever A review of the disease and clinical and laboratory findings in 105 patients. *Digestive and Liver Disease*. 2000;32(6):504-9.
38. Tamhane A, Redden DT, McGwin G, Jr., Brown EE, Westfall AO, Reynolds RJt, et al. Comparison of the disease activity score using erythrocyte sedimentation rate and C-reactive protein in African Americans with rheumatoid arthritis. *The Journal of rheumatology*. 2013;40(11):1812-22.
39. Lin Z, Vasudevan A, Tambyah PA. Use of erythrocyte sedimentation rate and C-reactive protein to predict osteomyelitis recurrence. *Journal of orthopaedic surgery (Hong Kong)*. 2016;24(1):77-83.
40. Wang CS, Sun CF. C-reactive protein and malignancy: clinico-pathological association and therapeutic implication. *Chang Gung medical journal*. 2009;32(5):471-82.
41. Tozzoli R, Bizzaro N, Tonutti E, Villalta D, Bassetti D, Manoni F, et al. Guidelines for the laboratory use of autoantibody tests in the diagnosis and monitoring of autoimmune rheumatic diseases. *American Journal of Clinical Pathology*. 2002;117(2):316-24.
42. Tiwari V, Jandu JS, Bergman MJ. Rheumatoid Factor. StatPearls [Internet]. 2020.
43. Nielsen SF, Bojesen SE, Schnohr P, Nordestgaard BG. Elevated rheumatoid factor and long term risk of rheumatoid arthritis: a prospective cohort study. *BMJ (Clinical research ed)*. 2012;345:e5244.
44. Shmerling RH, Delbanco TL. The rheumatoid factor: an analysis of clinical utility. *The American journal of medicine*. 1991;91(5):528-34.
45. Pawlotsky JM, Roudot-Thoraval F, Simmonds P, Mellor J, Ben Yahia MB, André C, et al. Extrahepatic immunologic manifestations in chronic hepatitis C and hepatitis C virus serotypes. *Annals of internal medicine*. 1995;122(3):169-73.
46. Newkirk MM. Rheumatoid factors: what do they tell us? *The Journal of rheumatology*. 2002;29(10):2034-40.
47. Brickmann K, Brezinschek RI, Yazdani-Biuki B, Graninger WB, Brezinschek HP. Superior specificity of anti-citrullinated peptide antibodies in patients with chronic lymphocytic leukemia and arthritis. *Clinical and experimental rheumatology*. 2010;28(6):888-91.
48. Bizzaro N, Mazzanti G, Tonutti E, Villalta D, Tozzoli R. Diagnostic accuracy of the anti-citrulline antibody assay for rheumatoid arthritis. *Clinical chemistry*. 2001;47(6):1089-93.
49. Nishimura K, Sugiyama D, Kogata Y, Tsuji G, Nakazawa T, Kawano S, et al. Meta-analysis: diagnostic accuracy of anti-cyclic citrullinated peptide antibody and rheumatoid factor for rheumatoid arthritis. *Annals of internal medicine*. 2007;146(11):797-808.

50. De Rycke L, Peene I, Hoffman I, Kruithof E, Union A, Meheus L, et al. Rheumatoid factor and anticitrullinated protein antibodies in rheumatoid arthritis: diagnostic value, associations with radiological progression rate, and extra-articular manifestations. *Annals of the rheumatic diseases*. 2004;63(12):1587-93.
51. Lee AN, Beck CE, Hall M. Rheumatoid factor and anti-CCP autoantibodies in rheumatoid arthritis: a review. *Clinical Laboratory Science*. 2008;21(1):15.
52. Bowness P. HLA-B27. *Annual review of immunology*. 2015;33:29-48.
53. Khan M. Thoughts concerning the early diagnosis of ankylosing spondylitis and related diseases. *Clinical and experimental rheumatology*. 2002;20(6; SUPP/28):S-6.
54. Lin H, Gong Y-Z. Association of HLA-B27 with ankylosing spondylitis and clinical features of the HLA-B27-associated ankylosing spondylitis: a meta-analysis. *Rheumatology international*. 2017;37(8):1267-80.
55. Bloch DB. Measurement and clinical significance of antinuclear antibodies. 2019.
56. Pisetsky D. Antinuclear antibodies in rheumatic disease: a proposal for a function-based classification. *Scandinavian journal of immunology*. 2012;76(3):223-8.
57. Cotten SW, Snyder MR. Antinuclear antibody screening: a delicate balance for clinical laboratories. Oxford University Press; 2017.
58. Alghamdi M. Familial Mediterranean fever, review of the literature. *Clinical rheumatology*. 2017;36(8):1707-13.
59. Olgun A, Akman S, Kurt I, Tuzun A, Kutluay T. MEFV mutations in familial Mediterranean fever: association of M694V homozygosity with arthritis. *Rheumatology international*. 2005;25(4):255-9.
60. Korkmaz C, Özdogan H, Kasapçopur Ö, Yazici H. Acute phase response in familial Mediterranean fever. *Annals of the rheumatic diseases*. 2002;61(1):79-81.
61. Ben-Zvi I, Herskovizh C, Kukuy O, Kassel Y, Grossman C, Livneh A. Familial Mediterranean fever without MEFV mutations: a case-control study. *Orphanet journal of rare diseases*. 2015;10:34.