

Bölüm 30

POEMS TANI VE TEDAVİSİ

Aysun GÖNDEREN¹

GİRİŞ

POEMS sendromu; polinöropati, organomegali, endokrinopati, monoklonal protein, deri değişiklikleri ile karakterize bir sendromdur. Vakaların tümünde gözlenen monoklonal gamopati ve periferik nöropati dışında osteosklerotik kemik lezyonları, Castleman hastalığı (anjiyofoliküler lenf nodu) artmış serum vasküler endotel büyüme faktörü (VEGF) seviyeleri, organomegali, endokrinopati, ödem, tipik cilt değişiklikleri, plevral efüzyon, asitler, eritrositöz veya trombositöz, papilödem gibi özelliklerin bir veya daha fazlasıyla karakterize edilir [1]. POEMS sendromunun daha az sıklıkla kullanılan diğer isimleri osteosklerotik miyelom, Takatsuki sendromu veya Crow-Fukase sendromudur [2,3].

PATOFİZYOLOJİ

VEGF, endotel hücrelerini hedef alması, vasküler geçirgenlikte hızlı ve geri dönüşlü bir artışa neden olması ve anjiyogenezdeki önemli rolü nedeniyle hastalıkla en iyi şekilde ilişkilendirilmiş olan sitokindir [4,5].

POEMS sendromunda mikroanjiyopati, ödem, efüzyon ve artmış vasküler geçirgenlik, neovaskülarizasyon, polinöropati, pulmoner hipertansiyon, lökositöz ve trombositözün da etkisi ile VEGF gibi proinflamatuvar sitokinlerin aşırı üretilmesi patofizyolojiden sorumlu tutulmuştur [6,7]. POEMS tanılı hastalar multipl miyelomlu hastalardan daha yüksek düzeyde interlökin-1 beta (IL-1B), tümör nekroz faktörü alfa (TNF-alfa) ve interlökin-6 (IL-6) 'ya sahiptir [6]. Hem IL-1B' nin hem de IL-6'nın VEGF üretimini uyardığı gösterilmiştir [8]. Trombositlerin [9] veya plazma hücrelerinin [10,11], vasküler geçirgenliği arttıran güçlü bir in-

¹ Dr Öğrt Üyesi, Aysun GÖNDEREN, Kütahya Sağlık Bilimleri Üniversitesi Evliya Çelebi EAH, dr.aysunbaz@gmail.com

Tablo 2: POEMS sendromunda kullanılan farklı tedaviler

| Rejim | Koşullar | Sonuç |
|------------------------------|---|---|
| Radyoterapi | 1-3 kemik lezyonu olan hastalar (kemik iliği tutulumu olmaması) | >%50 yanıt |
| Melfalan-Dexametazon | ASCT için uygun olmayan hasta | %100 VEGF ve nörolojik yanıt |
| Otolog kök hücre nakli(ASCT) | ASCT için uygun ve kök hücre toplanabilmiş hasta | %100 yanıt |
| Talidomid-Dexametazon | Daha önce arteryal olay olmaması | VEGF yanıtı ancak toksik nöropati riski |
| Lenalidomid-Dexametazon | Daha önce arteryal olay olmaması | Nörolojik ve VEGF yanıtı açısından RT veya ASCT' den önce etkili görünmekte |
| Bortezomib içeren rejimler | Genellikle ikinci basamakta | VEGF yanıtı % 88, Nörolojik iyileşme % 95 |

Anti-VEGF antikorları: Bazı vaka raporları, anticytokine /anti-VEGF aktivitesi olan ajanların (örneğin, bevacizumab) kullanılmasının bu hastalığın belirti ve semptomlarının bir kısmının veya tamamının iyileştirilmesinde yardımcı olabileceğini düşündürmekteydi [55,56]. VEGF'nin POEMS sendromunda rolü göz önüne alındığında bevacizumab mantıklı görünmekteydi ancak bu tedavinin bazı vaka serilerinde artmış mortaliteye neden olduğu gösterilmiştir. Artmış mortaliteyi açıklayabilen bir hipotez, yüksek VEGF seviyelerine uzun süre maruz kaldıktan sonra hipertrofik endotelial hücrelerde VEGF özelliğinin neden olduğu apoptozdur. Bu masif apoptozis, daha sonra, vasküler kaçak sendromunu indükleyen neovaskularizasyonun yıkımını tetikler [5,51].

POEMS sendromunda kullanılan farklı tedavi yöntemleri tablo 2' de gösterilmiştir [52,57,58,59,60,61].

KAYNAKÇA

1. Dispenzieri A, Kyle RA, Lacy MQ, et al. POEMS syndrome: definitions and long-term outcome. Blood 2003; 101:2496.
2. Takatsuki K, Sanada I. Plasma cell dyscrasia with polyneuropathy and endocrine disorder: clinical and laboratory features of 109 reported cases. Jpn J Clin Oncol. 1983;13:543-555.
3. Nakanishi T, Sobue I, Toyokura Y, et al. The Crow-Fukase syndrome: a study of 102 cases in Japan. Neurology. 1984;34:712-720.
4. Watanabe O, Arimura K, Kitajima I, et al. Greatly raised vascular endothelial growth factor (VEGF) in POEMS syndrome [letter]. Lancet. 1996;347:702.
5. Sekiguchi Y, Misawa S, Shibuya K, et al. Ambiguous effects of anti-VEGF monoclonal antibody (bevacizumab) for POEMS syndrome. J Neurol Neurosurg Psychiatr. 2013;84:1346-1348.

6. Gherardi RK, Bélec L, Soubrier M, et al. Overproduction of proinflammatory cytokines imbalanced by their antagonists in POEMS syndrome. *Blood* 1996; 87:1458.
7. Scarlato M, Previtali SC, Carpo M, et al. Polyneuropathy in POEMS syndrome: role of angiogenic factors in the pathogenesis. *Brain* 2005; 128:1911.
8. Soubrier M, Dubost JJ, Serre AF, et al. Growth factors in POEMS syndrome: evidence for a marked increase in circulating vascular endothelial growth factor. *Arthritis Rheum.* 1997;40:786–787.
9. Hashiguchi T, Arimura K, Matsumuro K, et al. Highly concentrated vascular endothelial growth factor in platelets in Crow-Fukase syndrome. *Muscle Nerve* 2000; 23:1051.
10. Endo I, Mitsui T, Nishino M, et al. Diurnal fluctuation of edema synchronized with plasma VEGF concentration in a patient with POEMS syndrome. *Intern Med* 2002; 41:1196.
11. Shinde A, Matsumae H, Maruyama A, et al. [A patient with Crow-Fukase syndrome associated with pulmonary plasmacytoma]. *Rinsho Shinkeigaku* 2001; 41:121.
12. Watanabe O, Maruyama I, Arimura K, et al. Overproduction of vascular endothelial growth factor/vascular permeability factor is causative in Crow-Fukase (POEMS) syndrome. *Muscle Nerve* 1998; 21:1390.
13. Kuwabara S, Misawa S, Kanai K, et al. Autologous peripheral blood stem cell transplantation for POEMS syndrome. *Neurology* 2006; 66:105.
14. D'Souza A, Hayman SR, Buadi F, et al. The utility of plasma vascular endothelial growth factor levels in the diagnosis and follow-up of patients with POEMS syndrome. *Blood* 2011; 118:4663.
15. Li J, Zhou DB, Huang Z, et al. Clinical characteristics and long-term outcome of patients with POEMS syndrome in China. *Ann Hematol* 2011; 90:819.
16. Kelly JJ, Jr., Kyle RA, Miles JM, et al. Osteosclerotic myeloma and peripheral neuropathy. *Neurology.* 1983;33:202–210.
17. Abe D, Nakaseko C, Takeuchi M, et al. Restrictive usage of monoclonal immunoglobulin lambda light chain germline in POEMS syndrome. *Blood* 2008; 112:836.
18. Soubrier MJ, Dubost JJ, Sauvezie BJ. POEMS syndrome: a study of 25 cases and a review of the literature. French Study Group on POEMS Syndrome. *Am J Med* 1994; 97:543.
19. Narváez JA, Majós C, Narváez J, et al. POEMS syndrome: unusual radiographic, scintigraphic and CT features. *Eur Radiol* 1998; 8:134.
20. Shibuya K, Misawa S, Horikoshi T, et al. Detection of bone lesions by CT in POEMS syndrome. *Intern Med* 2011; 50:1393.
21. D'Souza A, Lacy M, Gertz M, et al. Long-term outcomes after autologous stem cell transplantation for patients with POEMS syndrome (osteosclerotic myeloma): a single-center experience. *Blood* 2012; 120:56.
22. Albertí MA, Martínez-Yélamos S, Fernández A, et al. 18F-FDG PET/CT in the evaluation of POEMS syndrome. *Eur J Radiol* 2010; 76:180.
23. Dao LN, Hanson CA, Dispenzieri A, et al. Bone marrow histopathology in POEMS syndrome: a distinctive combination of plasma cell, lymphoid, and myeloid findings in 87 patients. *Blood* 2011; 117:6438-44
24. Nakano A, Mitsui T, Endo I, et al. Solitary plasmacytoma with VEGF overproduction: report of a patient with polyneuropathy. *Neurology.* 2001;56:818–819.
25. Koga H, Tokunaga Y, Hisamoto T, et al. Ratio of serum vascular endothelial growth factor to platelet count correlates with disease activity in a patient with POEMS syndrome. *Eur J Intern Med.* 2002;13:70-74.
26. Wang C, Huang XF, Cai QQ, et al. Remarkable expression of vascular endothelial growth factor in bone marrow plasma cells of patients with POEMS syndrome. *Leuk Res.* 2016;50:78–84.
27. Kanai K, Sawai S, Sogawa K, et al. Markedly upregulated serum interleukin-12 as a novel biomarker in POEMS syndrome. *Neurology* 2012; 79:575.
28. Webb NJ, Bottomley MJ, Watson CJ, Brenchley PE. Vascular endothelial growth factor (VEGF) is released from platelets during blood clotting: implications for measurement of circulating VEGF levels in clinical disease. *Clin Sci (Lond)* 1998; 94:395.

29. Bitter MA, Komaiko W, Franklin WA. Giant lymph node hyperplasia with osteoblastic bone lesions and the POEMS (Takatsuki's) syndrome. *Cancer* 1985; 56:188.
30. Bélec L, Mohamed AS, Authier FJ, et al. Human herpesvirus 8 infection in patients with POEMS syndrome-associated multicentric Castleman's disease. *Blood* 1999; 93:3643.
31. Gandhi GY, Basu R, Dispenzieri A, et al. Endocrinopathy in POEMS syndrome: the Mayo Clinic experience. *Mayo Clin Proc* 2007; 82:836.
32. Perniciaro C. POEMS syndrome. *Semin Dermatol* 1995; 14:162.
33. Miest RY, Comfere NI, Dispenzieri A, et al. Cutaneous manifestations in patients with POEMS syndrome. *Int J Dermatol* 2013; 52:1349.
34. Cui R, Yu S, Huang X, et al. Papilloedema is an independent prognostic factor for POEMS syndrome. *J Neurol*. 2014;261:60–65
35. Dispenzieri A. POEMS syndrome. *Blood Rev.* 2007;21:285–299.
36. Dupont SA, Dispenzieri A, Mauermann ML, et al. Cerebral infarction in POEMS syndrome: incidence, risk factors, and imaging characteristics. *Neurology*. 2009;73:1308–1312.
37. Li J, Tian Z, Zheng HY, et al. Pulmonary hypertension in POEMS syndrome. *Haematologica*. 2013;98:393–398.
38. Allam JS, Kennedy CC, Aksamit TR, et al. Pulmonary manifestations in patients with POEMS syndrome: a retrospective review of 137 patients. *Chest*. 2008;133:969–974. 41.
39. Stankowski-Drengler T, Gertz MA, Katzmann JA, et al. Serum immunoglobulin free light chain measurements and heavy chain isotype usage provide insight into disease biology in patients with POEMS syndrome. *Am J Hematol*. 2010;85:431–434.
40. Kyle RA, Rajkumar SV. Criteria for diagnosis, staging, risk stratification and response assessment of multiple myeloma. *Leukemia* 2009; 23:3.
41. Rajkumar SV, Dimopoulos MA, Palumbo A, et al. International Myeloma Working Group updated criteria for the diagnosis of multiple myeloma. *Lancet Oncol* 2014; 15:e538.
42. Lacy MQ, Gertz MA, Hanson CA, et al. Multiple myeloma associated with diffuse osteosclerotic bone lesions: a clinical entity distinct from osteosclerotic myeloma (POEMS syndrome). *Am J Hematol* 1997; 56:288.
43. Nobile-Orazio E, Casellato C, Di Troia A. Neuropathies associated with IgG and IgA monoclonal gammopathy. *Rev Neurol (Paris)* 2002; 158:979.
44. Fisher MA, Wilson JR. Characterizing neuropathies associated with monoclonal gammopathy of undetermined significance (MGUS): a framework consistent with classifying injuries according to fiber size. *Neurol Clin Neurophysiol* 2002; 2002:2.
45. Mauermann ML, Sorenson EJ, Dispenzieri A, et al. Uniform demyelination and more severe axonal loss distinguish POEMS syndrome from CIDP. *J Neurol Neurosurg Psychiatry* 2012; 83:480.
46. Nasu S, Misawa S, Sekiguchi Y, et al. Different neurological and physiological profiles in POEMS syndrome and chronic inflammatory demyelinating polyneuropathy. *J Neurol Neurosurg Psychiatry* 2012; 83:476.
47. Naddaf E, Dispenzieri A, Mandrekar J, et al. Thrombocytosis distinguishes poems syndrome from chronic inflammatory demyelinating polyneuropathy. *Muscle Nerve*. 2015.
48. Wang C, Huang XF, Cai QQ, et al. Prognostic study for overall survival in patients with newly diagnosed POEMS syndrome. *Leukemia* 2017;31:100–6.
49. Dispenzieri A. How I treat POEMS syndrome. *Blood* 2012; 119:5650.
50. Gavriatopoulou M, Musto P, Caers J, et al. European myeloma network recommendations on diagnosis and management of patients with rare plasma cell dyscrasias. *Leukemia* 2018; 32:1883.
51. Dispenzieri A. POEMS syndrome: 2017 Update on diagnosis, risk stratification, and management. *Am J Hematol* 2017; 92:814.
52. Li J, Zhang W, Jiao L, et al. Combination of melphalan and dexamethasone for patients with newly diagnosed POEMS syndrome. *Blood*. 2011;117:6445–49.
53. Stewart PM, Mc Intyre MA, Edwards CR. The endocrinopathy of POEMS syndrome. *Scott Med J*. 1989;34:520–522.

54. Dispenzieri A, Moreno-Aspitia A, Lacy MQ, et al. Peripheral blood stem cell transplant (PB-SCT) in a large series of patients with POEMS syndrome. *Biol Blood Marrow Transplant.* 2004;10:14–15.
55. Navis GJ, Dullaart RP, Vellenga E, et al. Renal disease in POEMS syndrome: report on a case and review of the literature [Review] [25 refs]. *Nephrol Dial Transplant.* 1994;9:1477–1481.
56. Takazoe K, Shimada T, Kawamura T, et al. Possible mechanism of progressive renal failure in Crow–Fukase syndrome [letter]. *Clin Nephrol.* 1997;47:66–67.
57. Misawa S, Sato Y, Katayama K, et al. Safety and efficacy of thalidomide in patients with POEMS syndrome: a multicentre, randomised, double-blind, placebo- controlled trial. *Lancet Neurol* 2016;15:1129–37.
58. Suh YG, Kim YS, Suh CO, et al. The role of radiotherapy in the management of POEMS syndrome. *Radiat Oncol* 2014;9:265.
59. Jaccard A, Lazareth A, Karlin L, et al. A prospective phase II trial of lenalidomide and dexamethasone (LEN-DEX) in POEMS syndrome. *Blood* 2014;124:36.
60. Jaccard A, Royer B, Bordessoule D, et al. High-dose therapy and autologous blood stem cell transplantation in POEMS syndrome. *Blood* 2002;99:3057–9.
61. Zeng K, Yang JR, Li J, et al. Effective induction therapy with subcutaneous administration of bortezomib for newly diagnosed POEMS syndrome: a case report and a review of the literature. *Acta Haematol* 2013;129:101–5.67.