

Bölüm 21

MASTOSİTOZ

Sevil SADRİ¹

GİRİŞ

Mastositöz , neoplastik mast hücrelerinin deri ve/veya birden çok organda birikmesi ile karakterize heterojen , nadir bir hastalık grubudur. Sistemik mastositöz (SM) da neoplastik mast hücreleri fokal ve/veya diffüz olarak kemik iliği , dalak, karaciğer ve gastrointestinal sistemde tutulabilir. SM’da hemen hemen bütün hastalarda kemik iliği tutulumu mevcut. Cilt tutulumu genelde indolent mastositöz (ISM) , daha az olarak SM’da ve nadiren mast hücreli lösemi de görülür.

Mastositöz ilk kez 1869’ da Nettleship ve Tay tarafından bir deri hastalığı olarak tarif edildi. 1949 ‘ da ilk SM vakası bildirildi ve gelecek yıllarda farklı semptomlar, özellikleri tanımlanarak alt grupları belirlendi. SM ‘ da prognoz çok değişkendir. 2001 yılında ilk kez Dünya Sağlık Örgütü (DSÖ) tarafından mastositoz temel sınıflaması yapıldı, 2016’da yeni prognostik parametreler ve etkili tedavi seçenekleri ile sınıflaması güncellendi(Tablo-1)

KUTANÖZ MASTOSİTOZ

2016 ‘ da kutaneoz mastositoz makulapapuler KM (ürtikeria pigmentosa) (Shawrtz & arkadaşları, 2016), diffüz KM(Akın & arkadaşları, 2002), derinin mastositoması olarak tanımlandı. Serum triptaz düzeyi genellikle 20 ng/mL ‘den düşüktür. KM genelde çocukluk yaşlarında tanı alınır ve iyi prognozludur, çoğu hastalarda puberte sonrası deri lezyonları kaybolur, o nedenle KM ‘ ye bağlı cilt tutulumların diğer cilt hastalıklarından ayırımı önemlidir(Caplan & arkadaşları, 1963).

Erişkinlerde ise hastalık persiste eder ve sistemik mastositoza dönüşür. Bazı kutanöz mastositozlu olgularda deri lezyonları yaygındır ve tedavi gerektirir. Tedavide antihistaminikler, cilt bakımı ve psoralen-UV A (PUVA) uygulanabilir. Ağır olgularda topikal kortikosteroidler kullanılabilir.

¹ Uzm. Dr., Medipol Mega Üniversitesi, sevilsadri@hotmail.com

2-İndüksiyon terapi

Akselere veya blastik faz KNL' de standart indüksiyon tedavisi ile(antrasiklin ve sitarabin) hiçbir hematolojik tam remisyon bildirilmemiştir, yalnızca akselere fazda olan bir hastada ikinci bir kronik faz elde ederek başarılı olunmuştur, lösemik olan hastalar indüksiyon tedavisi sonrası ya ölmüş veya hipoplastik kemik iliği saptanmıştır(Willard & arkadaşları 2001, Kobayashi & arkadaşları 2002)

3-Hematopoetik kök hücre nakli

Akselere veya blastik dönüşüm potansiyeli göz önüne alındığında allojenik kök hücre nakli tek tedavi yöntemidir, buna rağmen literatürde nispeten az sayıda ve tek vaka şeklinde raporlar mevcuttur, yaşları 15, 23, 26, 40 (n=29, 49(n=2) ve 60(n=2) ' olan dokuz vaka raporlanmış , nakil 6 hastada başarılı olmuş ve sırasıyla 78,73,54,36,7,1 aydan fazla remisyon saptanmıştır(Elliot & arkadaşları 2005,Bohm & arkadaşları 2002, Lee & arkadaşları 2015, Hasle & arkadaşları 1996, Goto & arkadaşları 2009). Şuan için KNL için kordon kanı veya haploidentikal nakil hakkında bilgi yoktur.

KAYNAKÇA

- Beekman R, Touw IP. (2010)G-CSF and its receptor in myeloid malignancy. *Blood*.115(25):5131–5136.
- Bench AJ, Nacheva EP, Champion KM, Green AR.(1998) Molecular genetics and cytogenetics of myeloproliferative disorders. *Baillieres Clin Haematol*. 11(4):819–848.
- Bohm, J. & Schaefer, H. E. (2002)Chronic neutrophilic leukaemia: 14 new cases of an uncommon myeloproliferative disease. *J. Clin. Pathol.*55, 862–864 . Hossfeld, D. K., Lokhorst, H. W. & Garbrecht, M. Neutrophilic leukemia accompanied by hemorrhagic diathesis: report of two cases. *Blut*. 54, 109–113 (1987)
- Caplan RM.(1963) The natural course of urticaria pigmentosa. Analysis and follow-up of 112 cases. *Arch Dermatol*. ;87:146-157.
- Chan RJ, Cooper T, Kratz CP et al. (2009)Juvenile Myelomonocytic Leukemia: A Report from the 2nd International JMML Symposium. *Leuk Res*. 33(3): 355–62.
- Elliott MA, Hanson CA, Dewald GW, et al. (2005)WHO-defined chronic neutrophilic leukemia: a long-term analysis of 12 cases and a critical review of the literature. *Leukemia*. 19(2):313–317.
- Elliott, M. A. (2006)Chronic neutrophilic leukemia and chronic myelomonocytic leukemia: WHO defined. *Best Pract. Res. Clin. Haematol*. 19, 571–593
- Ellis JM.(1949) Urticaria pigmentosa; a report of a case with autopsy. *Arch Pathol (Chic)*. 48(5): 426-435.
- Feger F, Ribadeau DA, Leriche L, Valent P, Arock M. (2002)Kit and c-kit mutation in mastocytosis: a short overview with special reference to novel molecular and diagnostic concepts. *Int Arch Allergy Immunol* .127:110-114.
- Freedman JL, Desai AV, Bailey LC, et al. (2016)Atypical Chronic Myeloid Leukemia in Two Pediatric Patients. *Pediatr Blood Cancer*. 63(1):156–159.
- Galli SJ, Tsai M, Wershil BK.(1993) The c-kit receptor, stem cell factor and mast cells: what each is teaching us about the others. *Am J Pathol* .142:965-974.

- Gleixner KV, Mayerhofer M, Aichberger KJ, et al. (2006) PKC412 inhibits in vitro growth of neoplastic human mast cells expressing the D816V mutated variant of KIT: comparison with AMN107, imatinib, and cladribine (2CdA) and evaluation of cooperative drug effects. *Blood*. 107(2):752-759
- Gotlib J, Berub 'e C, Growney JD, et al. (2005) Activity of the tyrosine kinase inhibitor PKC412 in a patient with mast cell leukemia with the D816V KIT mutation. *Blood*. 106(8):2865-2870.
- Gotlib J, Kluijn-Nelemans HC, George TI, et al. (2003) Durable responses and improved quality of life with midostaurin (PKC412) in advanced systemic mastocytosis (SM): updated stage 1 results of the global D2201 trial. *Blood*. 122:106
- Gotlib J, Kluijn-Nelemans HC, George TI, et al. (2016) Efficacy and safety of midostaurin in advanced systemic mastocytosis. *N Engl J Med*. 374(26):2530-2541.
- Gunawan AS, McLornan DP, Wilkins B, et al. (2017) Ruxolitinib, a potent JAK1/JAK2 inhibitor, induces temporary reductions in the allelic burden of concurrent CSF3R mutations in chronic neutrophilic leukemia. *Haematologica*. 102(6):e238–e240
- Hartmann K, Escribano L, Grattan C, et al. (2016) Cutaneous manifestations in patients with mastocytosis: consensus report of the European Competence Network on Mastocytosis; the American Academy of Allergy, Asthma & Immunology; and the European Academy of Allergology and Clinical Immunology. *J Allergy Clin Immunol*. 137(1):35-45
- Hasle H, Olesen G, Kerndrup G, et al. (1996) Chronic neutrophil leukaemia in adolescence and young adulthood. *Br J Haematol*. 94(4):628–630.
- Hasle, H., Olesen, G., Kerndrup, G., Philip, P. & Jacobsen, (1996) N. Chronic neutrophil leukaemia in adolescence and young adulthood. *Br. J. Haematol*. 628–630
- Klion AD, Law MA, Riemenschneider W, et al. (2004) Familial eosinophilia: a benign disorder? *Blood*. 103(11):4050–4055.
- Kluijn-Nelemans HC, Jansen JH, Breukelman H, et al. (1992) Response to interferon alfa-2b in a patient with systemic mastocytosis. *N Engl J Med*. 326(9):619-623.
- Kobayashi S, Yamashita K, Takeoka T, et al. (2002) Calpain-mediated X-linked inhibitor of apoptosis degradation in neutrophil apoptosis and its impairment in chronic neutrophilic leukemia. *J Biol Chem*. 277(37):33968–33977.
- Koldehoff M, Beelen DW, Trensche R, et al. (2004) Outcome of hematopoietic stem cell transplantation in patients with atypical chronic myeloid leukemia. *Bone Marrow Transplant*. 34(12):1047-1050.
- Krauth MT, Mirkina I, Herrmann H, Baumgartner C, Kneidinger M, Valent P. (2009) Midostaurin (PKC412) inhibits immunoglobulin E-dependent activation and mediator release in human blood basophils and mast cells. *Clin Exp Allergy*. 39(11):1711-1720.
- Lasho TL, Mims A, Elliott MA, et al. (2014) Chronic neutrophilic leukemia with concurrent CSF3R and SETBP1 mutations: single colony clonality studies, in vitro sensitivity to JAK inhibitors and lack of treatment response to ruxolitinib. *Leukemia*. 28(6):1363–1365.
- Lim KH, Pardanani A, Butterfield JH, Li CY, Tefferi A. (2006) Cytoreductive therapy in 108 adults with systemic mastocytosis: Outcome analysis and response prediction during treatment with interferon-alpha, hydroxyurea, imatinib mesylate or 2-chlorodeoxyadenosine
- Lim KH, Tefferi A, Lasho TL, et al. (2009) Systemic mastocytosis in 342 consecutive adults: survival studies and prognostic factors. *Blood*. 113(23):5727-5736.
- Longley BJ, Metcalfe DD, Tharp M, et al. (1999) Activating and dominant inactivating

- c-kit catalytic domain mutations in distinct forms of mastocytosis. *Proc Natl Acad Sci U S A*. 96:1609-1614.
- Martiat P, Michaux JL, Rodhain J. (1991)Philadelphia-negative (Ph-) chronic myeloid leukemia (CML): comparison with Ph+ CML and chronic myelomonocytic leukemia. The Groupe Français de Cytogénétique Hématologique. *Blood*. 78(1):205-211.
- Menezes J, Makishima H, Gomez I, et al. (2013)CSF3R T618I co-occurs with mutations of splicing and epigenetic genes and with a new PIM3 truncated fusion gene in chronic neutrophilic leukemia. *Blood Cancer J*. 3:e158:
- Mitsui H, Furitsu T, Dvorak AM, et al.(1990) Development of human mast cells from umbilical cord blood cells by recombinant human and murine c-kit ligand. *Proc Natl Acad Sci U S A* 90:753-759.
- Nettleship E, Tay W. Rare forms of urticaria. (1985)*Br Med J*. 1869;2:323-324.
- Parwaresch MR, Horny HP, Lennert K. (1985)Tissue mast cells in health and disease. (*Pathol Res Pract*. 179(4-5):439-461.
- Sperr WR, Horny H-P, Lechner K, Valent P. (2000)Clinical and biologic diversity of leukemias occurring in patients with mastocytosis. *Leuk Lymphoma* 37:473- 486
- Tuohy, E. (1920)A case of splenomegaly with polymorphonuclear neutrophil hyperleukocytosis. *Am. J. Med. Sci*. 160, 18–25 .
- Ustun C, Gotlib J, Popat U, et al. (2016)Consensus opinion on allogeneic hematopoietic cell transplantation in advanced systemic mastocytosis. *Biol Blood Marrow Transplant*. 22(8):1348-1356.
- Ustun C, Reiter A, Scott BL, et al. (2014)Hematopoietic stem-cell transplantation for advanced systemic mastocytosis. *J Clin Oncol*. 32(29): 3264-3274.
- Valent P, Akin C, Metcalfe DD. Mastocytosis. (2017)2016 updated WHO classification and novel emerging treatment concepts. *Blood* 129: 1420-1427
- Valent P, Akin C, Sperr WR, et al. (2003)Aggressive systemic mastocytosis and related mast cell disorders: current treatment options and proposed response criteria. *Leuk Res* 27:635-641.
- Valent P, Akin C, Sperr WR, Hony H-P, Metcalfe DD. (2002)Smouldering mastocytosis: a new type of systemic mastocytosis with slow progression. *Int Arch Allergy Immunol*. 127:137-139.
- Valent P, Horny H-P, Li CY, et al. (2001)Mastocytosis (mast cell disease). In: Jaffe ES, Harris NL, Stein H, Vardiman JW, eds. World Health Organization(WHO) Classification of Tumours. Pathology & Genetics. Tumours of Haematopoietic and Lymphoid Tissues. France: IARC Press Lyon; 291-302.
- Valent P, Horny HP, Escribano L, et al. (2001)Diagnostic criteria and classification of mastocytosis: a consensus proposal. *Leuk Res*. 25(7):603-625.
- Valent P, Sotlar K, Sperr WR, et al.(2014) Refined diagnostic criteria and classification of mast cell leukemia (MCL) and myelomastocytic leukemia (MML): a consensus proposal. *Ann Oncol*.25(9):1691-1700.
- Valent P, Sotlar K, Sperr WR, Reiter A, Arock M, Horny HP. (2015)Chronic mast cell leukemia: a novel leukemia-variant with distinct morphological and clinical features. *Leuk Res*. 39(1):1-5.
- Valent P, Spanplöchl E, SperrWR, et al. (1992)Induction of differentiation of human mast cells from bone marrow and peripheral blood mononuclear cells by recombinant human stem cell factor (SCF)/kit ligand (KL) in long term culture. *Blood* 80:2237-2245
- Vega-Ruiz A, Cortes JE, Sever M, et al. (2009)Phase II study of imatinib mesylate as therapy for patients with systemic mastocytosis. *Leuk Res*. 33(11):1481-1484.

- Wagner, L.A., Speckart, S., Cutter, B.A. & Gleich, G.J. (2009) Treatment of FIP1L1/PDFGRA negative hypereosinophilic syndrome by alemtuzumab, an anti-CD52 antibody. *Journal of Allergy and Clinical Immunology*, (in press).
- Willard RJ, Turiansky GW, Genest GP, et al. (2001)Leukemia cutis in a patient with chronic neutrophilic leukemia. *J Am Acad Dermatol.* 44(2 Suppl):365–369.
- Yavuz AS, Lipsky PE, Yavuz S, Metcalfe DD, Akin C. (2002)Evidence for the involvement of a hematopoietic progenitor cell in systemic mastocytosis from single cell analysis of mutations in the c-kit gene. *Blood* .100:661-665.
- Zhang H, Wilmot B, Bottomly D, et al. (2017)Detailed genomic characterization of CNL/aCML/MPN-U/CMML reveals disease subgroups that may benefit from rationally-designed combination therapies. *Cancer Res.* 77(13 Supplement):2452