

## Bölüm 6

# GENÇ FİT HASTALARDA KRONİK LENFOSİTİK LÖSEMİ İNDÜKSİYON TEDAVİSİ

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### GİRİŞ

Kronik lenfositik lösemi (KLL) fonksiyonel olarak yetersiz monoklonal B lenfositlerin progresif birikimi ile karakterize kronik lenfoproliferatif hastalıklardan biridir. KLL'nin, indolent non- Hodgkin lenfomalardan biri olan küçük lenfositik lenfoma (SLL) ile aynı hastalığın farklı tezahürleri olduğu düşünülmektedir. KLL terimi, hastalık öncelikle periferik kanda ortaya çıktığında kullanılır, SLL ise klinik olarak lenf bezi tutulumunun ön planda olduğu durumlarda kullanılır. Erken evre KLL ve SLL tedavisinde bazı farklılıklar olsa da, ileri evre hastalığın tedavisi aynıdır. İleri evre veya semptomatik genç ve fit hastalık için başlangıç tedavisinin seçimi burada gözden geçirilecektir.

### TEDAVİ ÖNCESİ DEĞERLENDİRME

Tedavi öncesi hastanın performansı, hastalığın evresi ve varsa komorbiditler belirlenmelidir. Öykü ve fizik muayeneye ek olarak KLL hastalarında tedavi öncesi değerlendirilmesi önerilenler:

- 1- Aralıklı tam kan sayımı, karaciğer, böbrek fonksiyon testleri, elektrolitler, alkalen fosfataz, laktat dehidrojenaz, beta-2 mikroglobulin ve direkt antiglobulin testi,
- 2- Tüm hastalara HIV, hepatit B ve hepatit C testi yapılmalı. Sitomegalovirüs (CMV) reaktivasyonu ile ilişkili ajanlarla (alemtuzumab, idelalisib veya allojenik hematopoetik hücre nakli) tedavi edilen hastalar için, CMV (IgM ve IgG) serolojisi,
- 3- Hastalıkla açıklanamayan sitopenisi olan tüm hastalara tek taraflı kemik iliği aspirasyonu ve biyopsi önerilmektedir. Bazı klinisyenler sitotoksik tedavi baş-

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## SONUÇ

KLL oldukça heterojen bir hastalıktır ve tüm hastalar tanı anında tedavi gerektirmez. Tedavi, ileri evre hastalığı, yüksek tümör yükü, ağır hastalıkla ilgili “B” semptomları veya tekrarlayan enfeksiyonları olan hastalar için endikedir. Tedaviye başlamadan önce hastanın performans durumunu, komorbiditeleri değerlendirilmeli ve tedavi seçenekleri üzerinde etkisi olacağından del (17) p gibi laboratuvar parametreleri belirlenmelidir. Başlangıç tedavisi için belirlenmiş tek bir standart rejim yoktur. Mevcut farklı rejimlerle genel sağkalım oranları benzer olsa da, bunlar tam remisyon, progresyonsuz sağkalımlar ve toksisite oranları bakımından farklılıklar gösterir. Seçim, hasta özelliklerine ve tedavinin amaçlarına göre yapılır. Bu rejimlerle toplam sağkalım, hasta ve hastalık özelliklerine, dolayısıyla tedavi tercihinine bağlı olarak yaklaşık üç ila sekiz yıldır. Tedavi rejimleri ve sonuçları, genç ve yaşlılar arasında yaşla artan komorbiditeler nedeniyle farklılık gösterebilir. Çoğu çalışmada yaşlı terimi 65 veya 70 yaş üstü olarak tanımlanmıştır, ancak tedavi yoğunluğunu belirlerken hastanın takvim yaşı yerine fizyolojik yaşının dikkate alınması önerilmektedir. IGHV mutant olmayan genç KLL (<70 yaş) hastalarına kemoimmünoterapiden ziyade ibrutinib ± rituksimab önerilmekte. IGHV mutant ve 17p delesyon / TP53 mutasyonu olmayan daha genç hastalar için, ibrutinib bazlı rejimler veya FCR kabul edilebilir seçeneklerdir, bunlar arasındaki seçim hasta tercihinine göre yapılabilir. FCR zaman sınırlı bir tedavi, ardından tedavi gerektirmeyen bir süre sunar. FCR, uzun süreli kalıcı remisyon potansiyeli ile daha yoğun, zaman sınırlı bir tedavi sunar. Buna karşılık, ibrutinib ilerlemeye kadar günlük uygulanan daha az yoğun bir oral tedavidir. Del (17p) veya TP53 mutasyonu olan hastalar kemoimmünoterapi ile yapılan ilk tedaviye cevap vermeme veya remisyona girdikten hemen sonra tekrarlanma riski yüksektir, bu nedenle klinik araştırmalara katılmaya teşvik edilmelidirler. Bu popülasyon için, hastanın yaşından bağımsız olarak, hedefe yönelik tedavi (ibrutinib veya venetoclax + obinutuzumab kombinasyonu) önerilmektedir. Genç/ fit hastalar herhangi bir tedaviye ilk yanıtı aldıktan sonra potansiyel allogeneik HTC için değerlendirilmelidir.

## KAYNAKÇA

- Ahn IE, Farooqui MZH, Tian X, et al. Depth and durability of response to ibrutinib in CLL: 5-year follow-up of a phase 2 study. *Blood* 2018; 131:2357.
- Bauer K, Rancea M, Roloff V, et al. Rituximab, ofatumumab and other monoclonal anti-CD20 antibodies for chronic lymphocytic leukaemia. *Cochrane Database Syst Rev* 2012; 11:CD008079.
- Blum KA, Young D, Broering S, et al. Computed tomography scans do not improve the predictive power of 1996 national cancer institute sponsored working group chronic lymphocytic leukemia response criteria. *J Clin Oncol* 2007; 25:5624.
- Bosch F, Abrisqueta P, Villamor N, et al. Rituximab, fludarabine, cyclophosphamide, and mitoxantone: a new, highly active chemoimmunotherapy regimen for chronic lymphocytic leukemia. *J Clin Oncol* 2009; 27:4578.

- Burger JA, Keating MJ, Wierda WG, et al. Safety and activity of ibrutinib plus rituximab for patients with high-risk chronic lymphocytic leukaemia: a single-arm, phase 2 study. *Lancet Oncol* 2014; 15:1090. Burger JA, Sivina M, Jain N, et al. Randomized trial of ibrutinib vs ibrutinib plus rituximab in patients with chronic lymphocytic leukemia. *Blood* 2019; 133:1011.
- Byrd JC, Peterson BL, Morrison VA, et al. Randomized phase 2 study of fludarabine with concurrent versus sequential treatment with rituximab in symptomatic, untreated patients with B-cell chronic lymphocytic leukemia: results from Cancer and Leukemia Group B 9712 (CALGB 9712). *Blood* 2003; 101:6.
- Byrd JC, Rai K, Peterson BL, et al. Addition of rituximab to fludarabine may prolong progression-free survival and overall survival in patients with previously untreated chronic lymphocytic leukemia: an updated retrospective comparative analysis of CALGB 9712 and CALGB 9011. *Blood* 2005; 105:49.
- Byrd JC, Ruppert AS, Heerema NA, et al. Lenalidomide consolidation benefits patients with CLL receiving chemoimmunotherapy: results for CALGB 10404 (Alliance). *Blood Adv* 2018; 2:1705.
- Cazin B, Divine M, Leprêtre S, et al. High efficacy with five days schedule of oral fludarabine phosphate and cyclophosphamide in patients with previously untreated chronic lymphocytic leukaemia. *Br J Haematol* 2008; 143:54.
- Dreger P, Corradini P, Kimby E, et al. Indications for allogeneic stem cell transplantation in chronic lymphocytic leukemia: the EBMT transplant consensus. *Leukemia* 2007; 21:12.
- Dreger P, Schetelig J, Andersen N, et al. Managing high-risk CLL during transition to a new treatment era: stem cell transplantation or novel agents? *Blood* 2014; 124:3841.
- Dreger P, Ghia P, Schetelig J, et al. High-risk chronic lymphocytic leukemia in the era of pathway inhibitors: integrating molecular and cellular therapies. *Blood* 2018; 132:892.
- Eichhorst B, Fink AM, Bahlo J, et al. First-line chemoimmunotherapy with bendamustine and rituximab versus fludarabine, cyclophosphamide, and rituximab in patients with advanced chronic lymphocytic leukaemia (CLL10): an international, open-label, randomised, phase 3, non-inferiority trial. *Lancet Oncol* 2016; 17:928.
- Farooqui MZ, Valdez J, Martyr S, et al. Ibrutinib for previously untreated and relapsed or refractory chronic lymphocytic leukaemia with TP53 aberrations: a phase 2, single-arm trial. *Lancet Oncol* 2015; 16:169.
- Fischer K, Cramer P, Busch R, et al. Bendamustine in combination with rituximab for previously untreated patients with chronic lymphocytic leukemia: a multicenter phase II trial of the German Chronic Lymphocytic Leukemia Study Group. *J Clin Oncol* 2012; 30:3209.
- Fischer K, Bahlo J, Fink AM, et al. Long-term remissions after FCR chemoimmunotherapy in previously untreated patients with CLL: updated results of the CLL8 trial. *Blood* 2016; 127:208.
- Fischer K, Al-Sawaf O, Bahlo J, et al. Venetoclax and Obinutuzumab in Patients with CLL and Co-existing Conditions. *N Engl J Med* 2019; 380:2225.
- Geisler CH, van T' Veer MB, Jurlander J, et al. Frontline low-dose alemtuzumab with fludarabine and cyclophosphamide prolongs progression-free survival in high-risk CLL. *Blood* 2014; 123:3255.
- Gill S, Carney D, Ritchie D, et al. The frequency, manifestations, and duration of prolonged cytopenias after first-line fludarabine combination chemotherapy. *Ann Oncol* 2010; 21:331.
- Gribben JG. How I treat CLL up front. *Blood* 2010; 115:187.
- Hallek M, Fischer K, Fingerle-Rowson G, et al. Addition of rituximab to fludarabine and cyclophosphamide in patients with chronic lymphocytic leukaemia: a randomised, open-label, phase 3 trial. *Lancet* 2010; 376:1164.
- Hallek M, Cheson BD, Catovsky D, et al. iwCLL guidelines for diagnosis, indications for treatment, response assessment, and supportive management of CLL. *Blood* 2018; 131:2745.
- Hillmen P, Badoux X, Delgado J, et al. Safety results of terminated phase 2 study of idelalisib plus rituximab in treatment naive chronic lymphocytic leukemia (CLL) with del(17p) (abstract S465). *Haematologica* 2017; 102.

- Jain N, Keating M, Thompson P, et al. Ibrutinib and Venetoclax for First-Line Treatment of CLL. *N Engl J Med* 2019; 380:2095.
- Kay NE, Geyer SM, Call TG, et al. Combination chemoimmunotherapy with pentostatin, cyclophosphamide, and rituximab shows significant clinical activity with low accompanying toxicity in previously untreated B chronic lymphocytic leukemia. *Blood* 2007; 109:405.
- Kay NE, Wu W, Kabat B, et al. Pentostatin and rituximab therapy for previously untreated patients with B-cell chronic lymphocytic leukemia. *Cancer* 2010; 116:2180.
- Keating MJ, O'Brien S, Albitar M, et al. Early results of a chemoimmunotherapy regimen of fludarabine, cyclophosphamide, and rituximab as initial therapy for chronic lymphocytic leukemia. *J Clin Oncol* 2005; 23:4079.
- Khashab T, Hagemester F, Romaguera JE, et al. Long-term overall- and progression-free survival after pentostatin, cyclophosphamide and rituximab therapy for indolent non-Hodgkin lymphoma. *Br J Haematol* 2019; 185:670.
- Knauf WU, Lissitchkov T, Aldaoud A, et al. Bendamustine compared with chlorambucil in previously untreated patients with chronic lymphocytic leukaemia: updated results of a randomized phase III trial. *Br J Haematol* 2012; 159:67.
- Lampson BL, Kasar SN, Matos TR, et al. Idelalisib given front-line for treatment of chronic lymphocytic leukemia causes frequent immune-mediated hepatotoxicity. *Blood* 2016; 128:195.
- Lampson BL, Kim HT, Davids MS, et al. Efficacy results of a phase 2 trial of first-line idelalisib plus ofatumumab in chronic lymphocytic leukemia. *Blood Adv* 2019; 3:1167.
- Lozanski G, Heerema NA, Flinn IW, et al. Alemtuzumab is an effective therapy for chronic lymphocytic leukemia with p53 mutations and deletions. *Blood* 2004; 103:3278.
- Michallet AS, Aktan M, Hiddemann W, et al. Rituximab plus bendamustine or chlorambucil for chronic lymphocytic leukemia: primary analysis of the randomized, open-label MABLE study. *Haematologica* 2018; 103:698.
- Moreno C, Greil R, Demirkan F, et al. Ibrutinib plus obinutuzumab versus chlorambucil plus obinutuzumab in first-line treatment of chronic lymphocytic leukaemia (iLLUMINATE): a multicentre, randomised, open-label, phase 3 trial. *Lancet Oncol* 2019; 20:43.
- Osuji NC, Del Giudice I, Matutes E, et al. The efficacy of alemtuzumab for refractory chronic lymphocytic leukemia in relation to cytogenetic abnormalities of p53. *Haematologica* 2005; 90:1435.
- Pettitt AR, Matutes E, Oscier D. Alemtuzumab in combination with high-dose methylprednisolone is a logical, feasible and highly active therapeutic regimen in chronic lymphocytic leukaemia patients with p53 defects. *Leukemia* 2006; 20:1441.
- Pettitt AR, Jackson R, Carruthers S, et al. Alemtuzumab in combination with methylprednisolone is a highly effective induction regimen for patients with chronic lymphocytic leukemia and deletion of TP53: final results of the national cancer research institute CLL206 trial. *J Clin Oncol* 2012; 30:1647.
- Rai KR, Peterson BL, Appelbaum FR, et al. Long-term survival analysis of the north american intergroup study C9011 comparing fludarabine (F) and chlorambucil (C) in previously untreated patients with chronic lymphocytic leukemia (abstract 536). *Blood* 2009; 114:224.
- Reynolds C, Di Bella N, Lyons RM, et al. A Phase III trial of fludarabine, cyclophosphamide, and rituximab vs. pentostatin, cyclophosphamide, and rituximab in B-cell chronic lymphocytic leukemia. *Invest New Drugs* 2012; 30:1232.
- Samaniego F, Fanale M, Pro B, et al. Pentostatin, cyclophosphamide, and rituximab achieve high response rates in indolent B-cell lymphoma without prolonged myelosuppression (abstract 835). *Blood* 2008; 112:309.
- Shanafelt T, Wang XV, Kay NE, et al. Ibrutinib & rituximab improves progression free and overall survival relative to FCR in younger patients with previously untreated chronic lymphocytic leukemia (abstract LBA 4). *Blood* 2018.
- Steurer M, Pall G, Richards S, et al. Purine antagonists for chronic lymphocytic leukaemia. *Cochrane Database Syst Rev* 2006; :CD004270.

- Stilgenbauer S, Schnaiter A, Paschka P, et al. Gene mutations and treatment outcome in chronic lymphocytic leukemia: results from the CLL8 trial. *Blood* 2014; 123:3247.
- Strati P, Wierda W, Burger J, et al. Myelosuppression after frontline fludarabine, cyclophosphamide, and rituximab in patients with chronic lymphocytic leukemia: analysis of persistent and new-onset cytopenia. *Cancer* 2013; 119:3805.
- Tam CS, Wolf M, Prince HM, et al. Fludarabine, cyclophosphamide, and rituximab for the treatment of patients with chronic lymphocytic leukemia or indolent non-Hodgkin lymphoma. *Cancer* 2006; 106:2412.
- Tam CS, O'Brien S, Wierda W, et al. Long-term results of the fludarabine, cyclophosphamide, and rituximab regimen as initial therapy of chronic lymphocytic leukemia. *Blood* 2008; 112:975.
- Thompson PA, Tam CS, O'Brien SM, et al. Fludarabine, cyclophosphamide, and rituximab treatment achieves long-term disease-free survival in IGHV-mutated chronic lymphocytic leukemia. *Blood* 2016; 127:303.
- Thompson PA, Stingo F, Keating MJ, et al. Outcomes of patients with chronic lymphocytic leukemia treated with first-line idelalisib plus rituximab after cessation of treatment for toxicity. *Cancer* 2016; 122:2505.
- Xavier E, Cornillon J, Ruggeri A, et al. Outcomes of Cord Blood Transplantation Using Reduced-Intensity Conditioning for Chronic Lymphocytic Leukemia: A Study on Behalf of Eurocord and Cord Blood Committee of Cellular Therapy and Immunobiology Working Party, Chronic Malignancies Working Party of the European Society for Blood and Marrow Transplantation, and the Société Française de Greffe de Moelle et Therapie Cellulaire. *Biol Blood Marrow Transplant* 2015; 21:1515.
- <http://www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm369846.htm> (Accessed on September 26, 2013)
- Woyach JA, Ruppert AS, Rai K, et al. Impact of age on outcomes after initial therapy with chemotherapy and different chemoimmunotherapy regimens in patients with chronic lymphocytic leukemia: results of sequential cancer and leukemia group B studies. *J Clin Oncol* 2013; 31:440.
- Woyach JA, Ruppert AS, Heerema NA, et al. Ibrutinib Regimens versus Chemoimmunotherapy in Older Patients with Untreated CLL. *N Engl J Med* 2018; 379:2517.