Kök Hücre Nakli

Prof. Dr. Fevzi ALTUNTAŞ

Ankara Yıldırım Beyazıt Üniversitesi Tıp Fakültesi

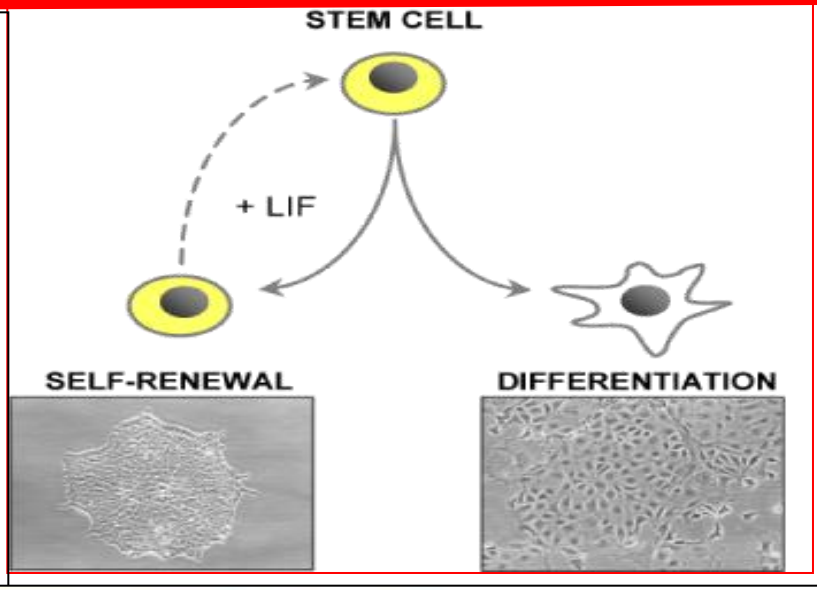
İç Hastalıkları Anabilim Dalı

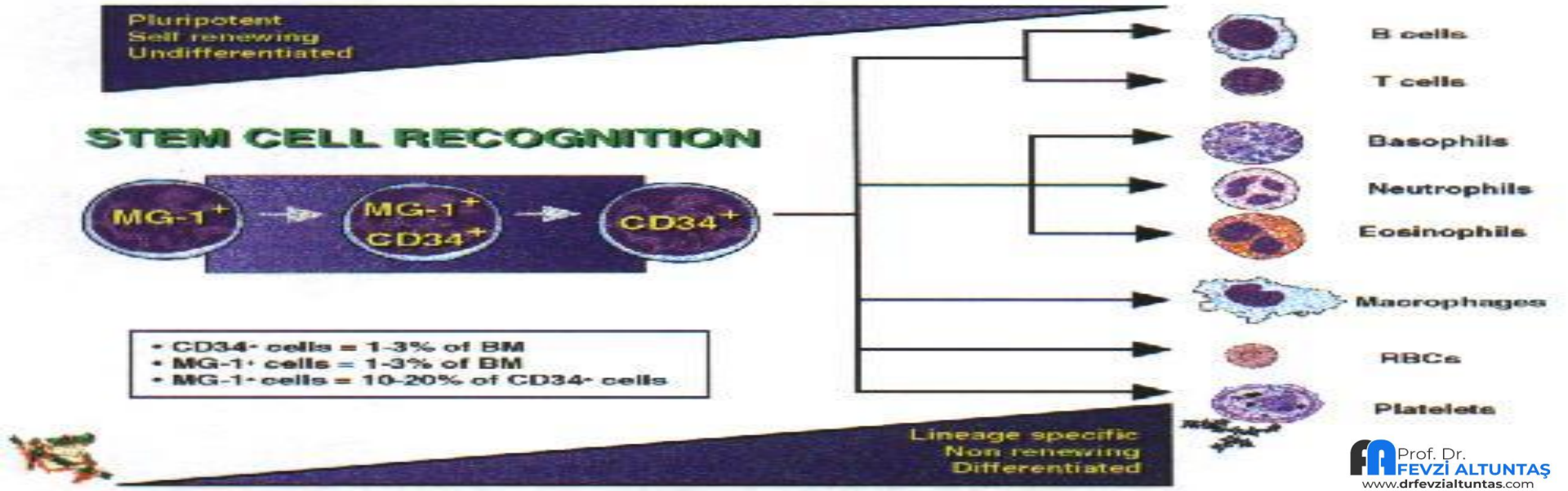
Hematoloji Bilimdalı Öğretim Üyesi

Dönem-IV, 2020, Ankara

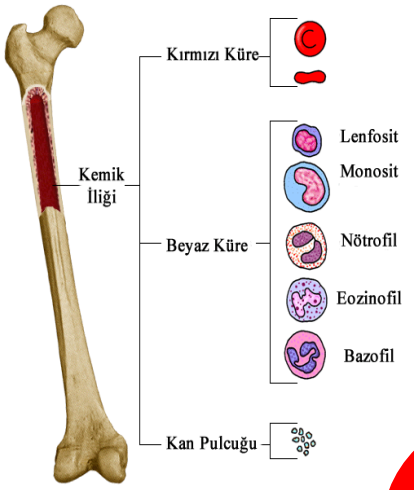
Kök Hücre Nedir?

- Kendini yenileyebilen (Self-Renewal)
- Farklı hücrelere yönlenebilen (Differentiation)
- Yamalanma yapabilen (Engrafment)
- Klonal hücreler





HEMATOPOETİK KÖK HÜCRE NE YAPAR?



- KAN YAPICI ANA HÜCRE

HEMATOPOETİK KÖK HÜCRE

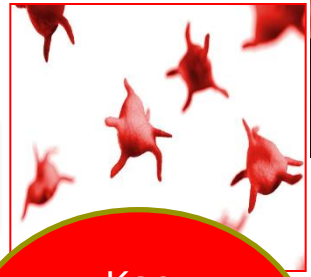
HEMATOPOETİK

- KAN HÜCRELERİ OLUŞTURAN

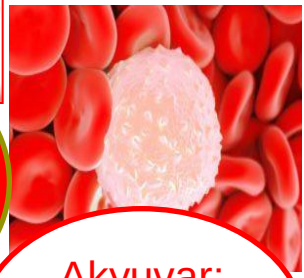
- KAN HÜCRELERİNİN OLUŞMASI

HEMATOPOEZ

Alyuvar; Dokulara oksijen taşır



Kan pulcukları; Kanamadan korur

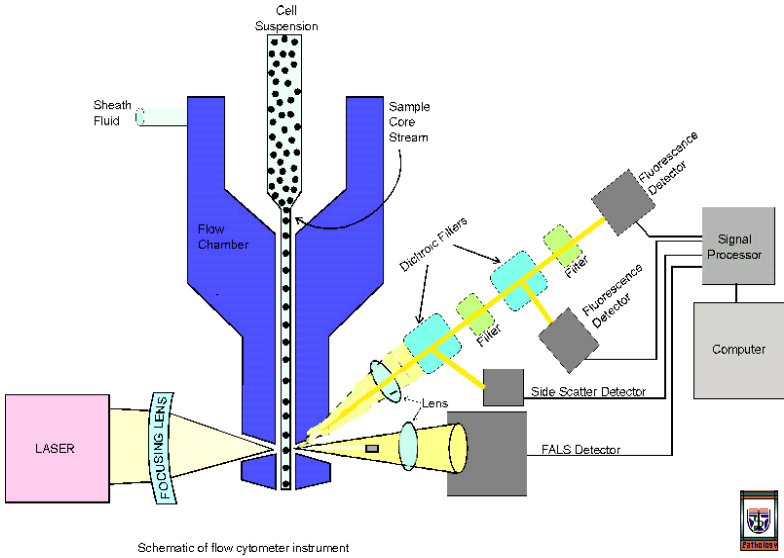


Akyuvar; mikroplar dan korur

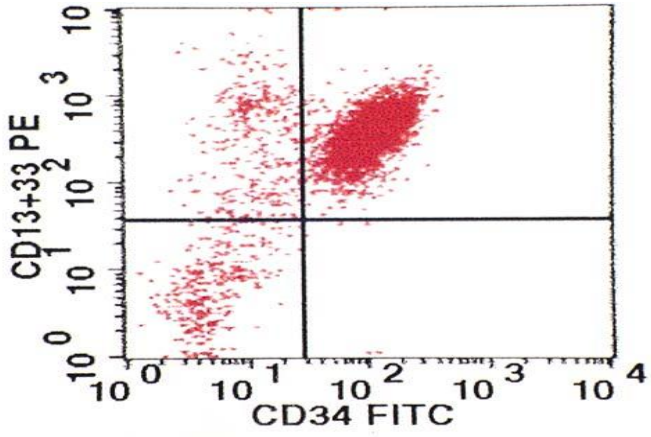
Kök hücre

NASIL TESPİT EDİLİR?

- Kök hücreler yüzeyinde belli proteinler eksprese ederler:
  - **CD34**
- CD34+ hücreler akım sitometri yöntemi kullanılarak tespit edilebilir
  - En kısa zaman dilimi içinde kök hücreyi tespit etmek için indirekt bir teknik,
    - Birkaç saat alır.



Schematic of flow cytometer instrument



Hematopoetik Kök Hücre Kaynakları

Kök Hücre
KAYNAKLARI NELER?

What Is the Most Appropriate Source for Hematopoietic Stem Cell Transplantation? Peripheral Stem Cell/Bone Marrow/Cord Blood

Itır Sirinoglu Demiriz, Emre Tekgunduz, and Fevzi Altuntas

Hematology Clinic and Hematopotic Stem Cell Transplantation Unit, Ankara On... Training and Research Hospital (AOH), Yenimahalle, Demetevler, 06200 Ankara, Turkey

Correspondence should be addressed to Itır Sirinoglu Demiriz, dri...

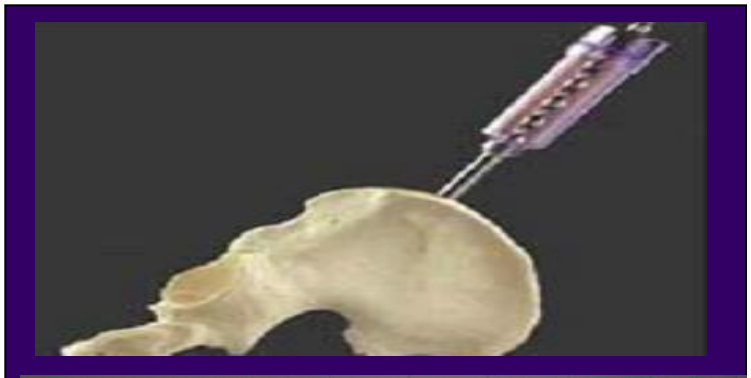
Received 16 June 2012; Accepted 30 August 2012

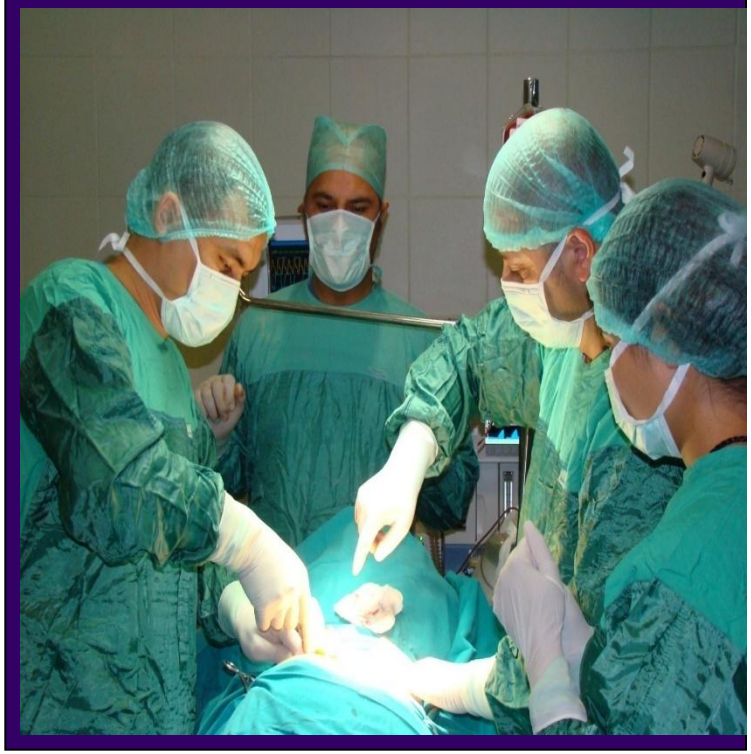
Academic Editor: Andrzej Lange

The introduction of peripheral stem ... (BM) recently has caused important changes on hematopoietic st... BMTR data, there has been a significant decrease in the use of bone ma... cell source for HSCT performed during 1997–2006 period for patients unde... ...urce in 70% of the HSCT procedures performed for patients over the age of 20 was ... cell source was bone marrow. CB usage is very limited for the adult population. Primary ... of transplantation, HLA match between the patient and the donor, stem cell quantity, and the ...tion center are some of the associated factors for the selection of the appropriate stem cell source. U... prospective randomized study aimed to facilitate the selection of the correct source between CB, PSC, and ... we would like to emphasize the data on stem cell selection in light of the current knowledge for patient population... to their age and primary disease.

- Kemik iliği
- Periferik Kan
- Kordon Kanı

Altuntas F et al. Bone Marrow Res 2012; 834-40



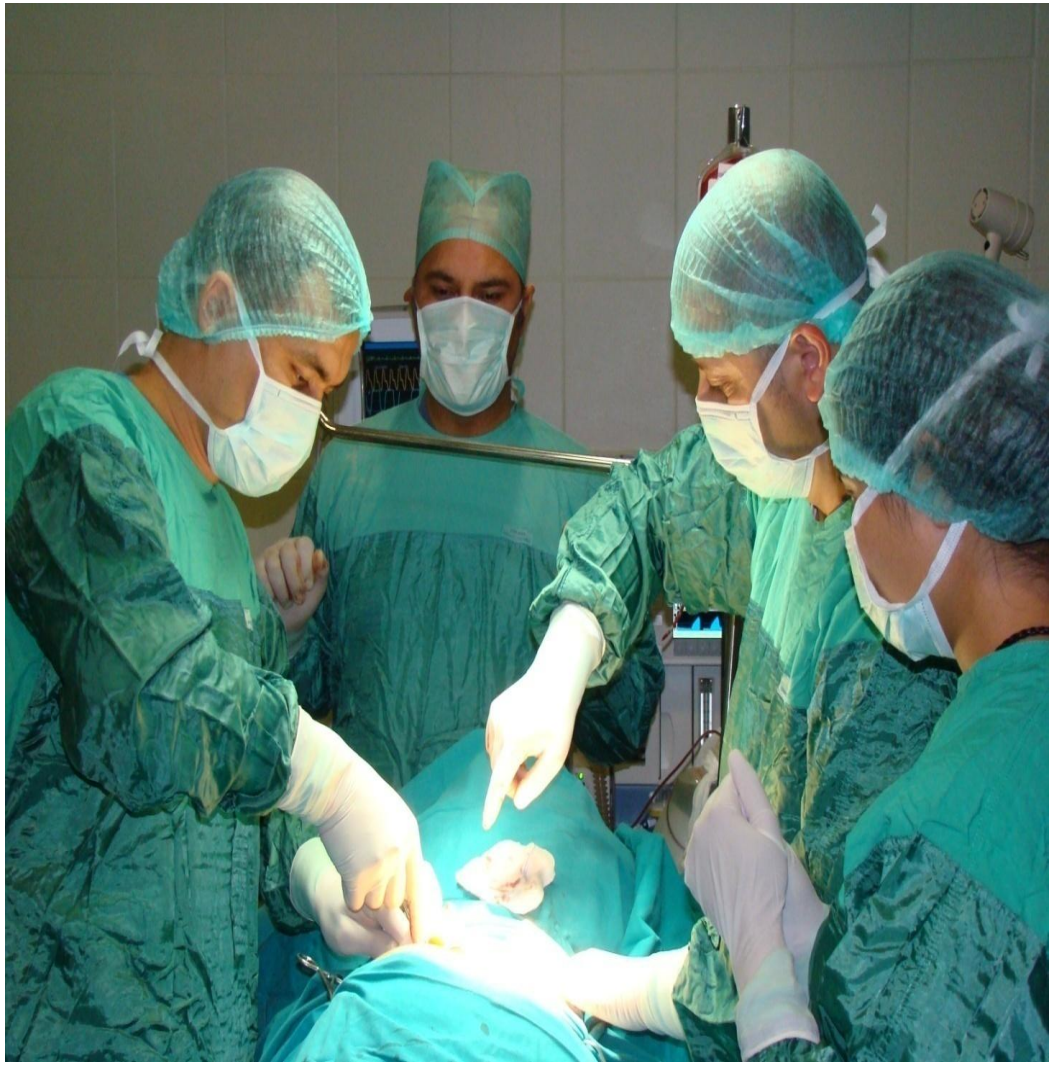


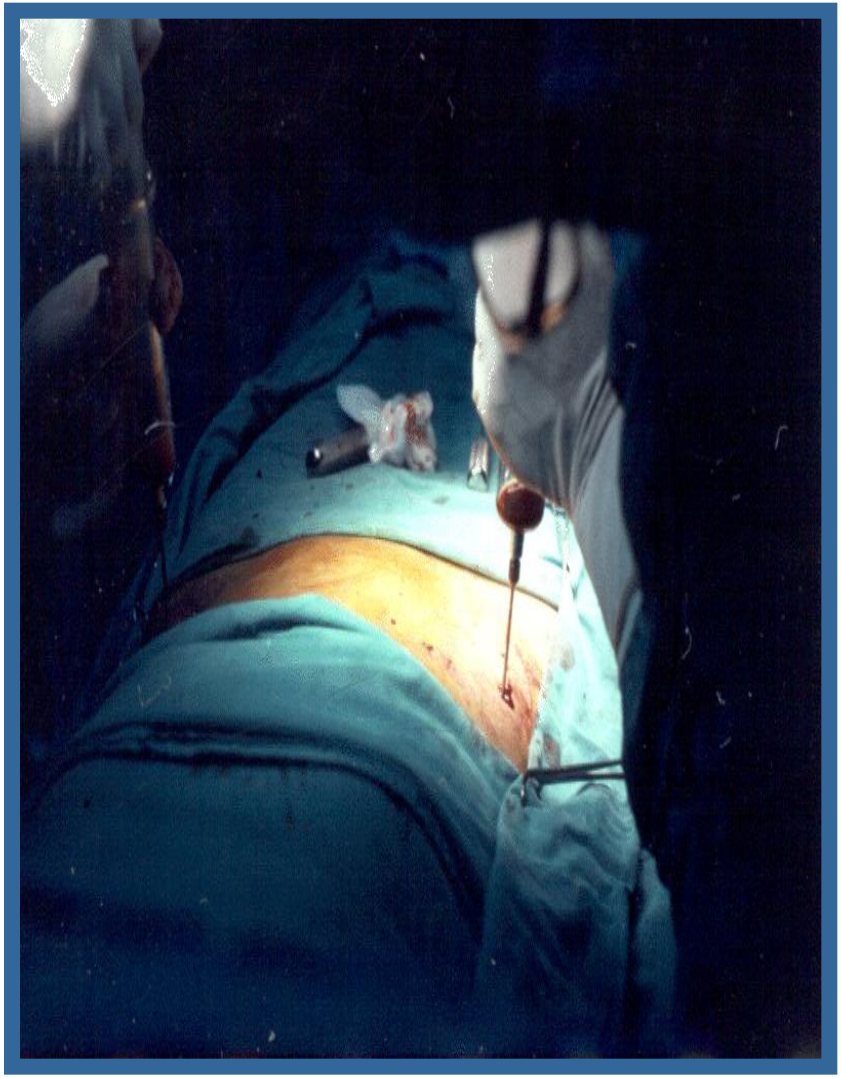
Kemik İliği Kaynaklı Kök Hücre Toplama

(KI >MNH %1-4)

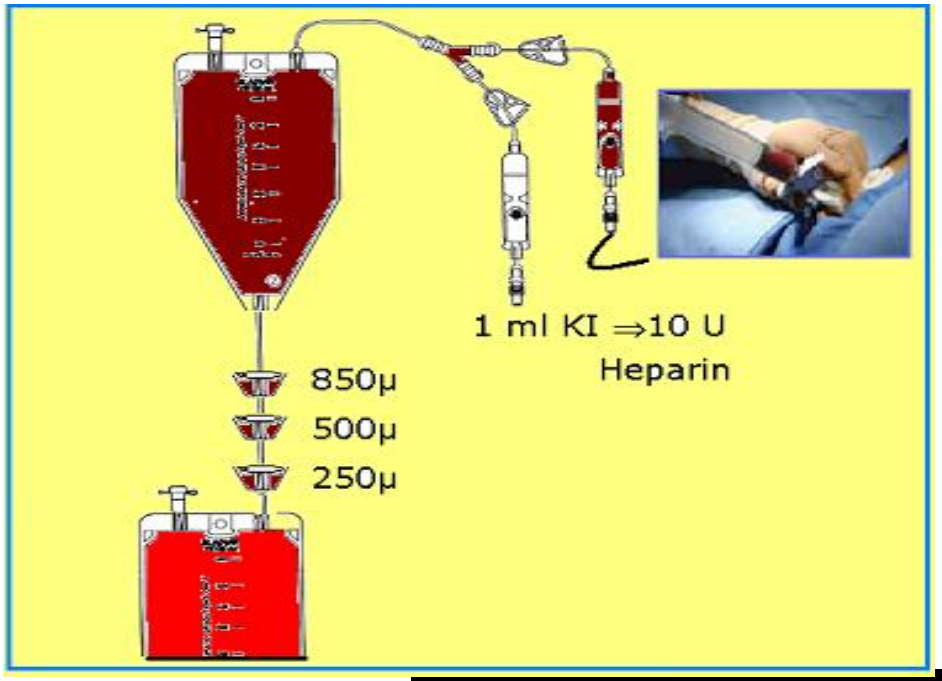
- Alıcının kilogramı başına ~10-20 ml ilik materyali alınır.

VERİCİDEN AMELİYATHANEDE KEMİK İLİĞİ TOPLANMASI



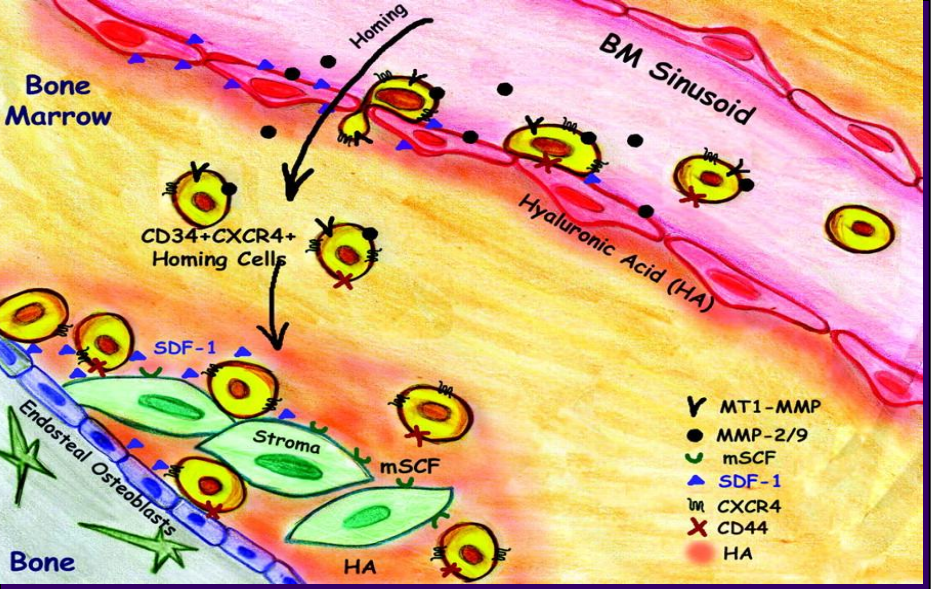


Kemik İliği Kaynaklı Kök Hücre Toplama

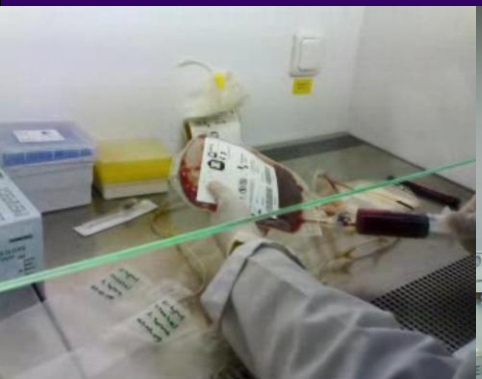


- Amaç:
  - 2-3 x 10^8 çekirdekli hücre/kg
  - >2 x 10^6 CD34+ hücre/kg
- Kemik İliği harvest
  - 10 ml x 100-200 aspirasyon

Periferik Kök Hücre Toplama



Çekirdekli hücrelerin %0.05



Periferik Kök Hücre

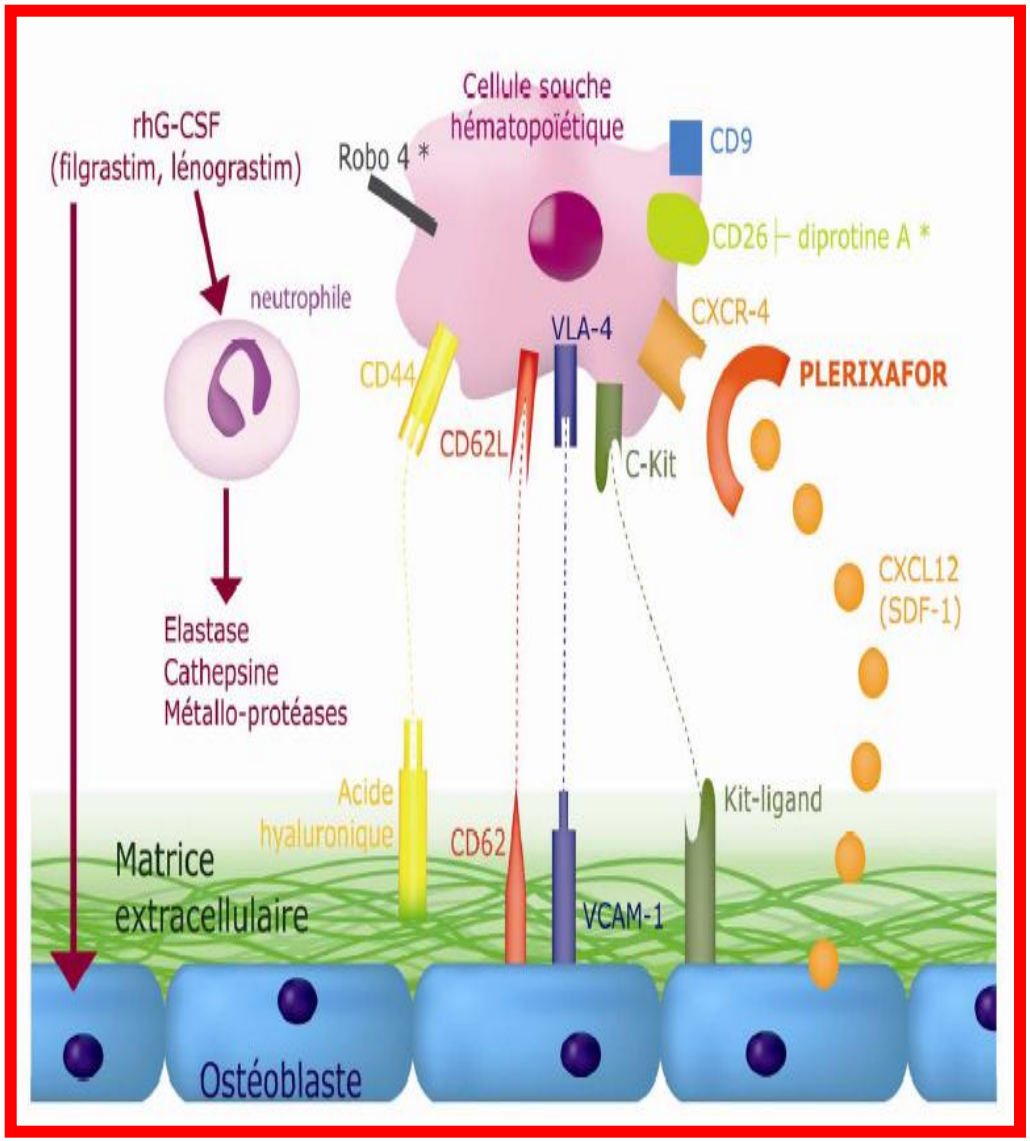
MOBİLİZASYON NEDİR?

- Tanım:
  - **Mobilizasyon= Kİ'den PK'a kök hücre geçişi sağlamak**
  - Mobilizasyon rejimi= PK kök hücre içeriğini artırmak için kullanılan ajan
  - Çünkü
    - PK kök hücre içeriği Kİ'dekinden 10-100 kez daha az:
      - Kİ = hücrelerin %1-4' i CD34 eksprese eder
      - PK = hücrelerin %0.03-% 0.1 CD34 eksprese eder

L. Bik To, et al. How I treat patients who mobilize hematopoietic stem cells poorly. Blood 2011; 118(17): 4530-4540

Kök Hücre Mobilizasyonu BİYOLOJİSİ

- Kök Hücrenin Kİ tutunması önemli rol alan Reseptör-Ligand etkileşimleri:
  - CXCR4 / SDF-1
  - VLA-4 / VCAM-1
  - CD44 / HA
  - CD62 / PSLG
  - c-kit / KL



Periferik Kök Hücre Mobilizasyonu

Journal of Clinical Apheresis 00:00–00 (2015)

The Current Status in Hematopoietic Stem Cell Mobilization

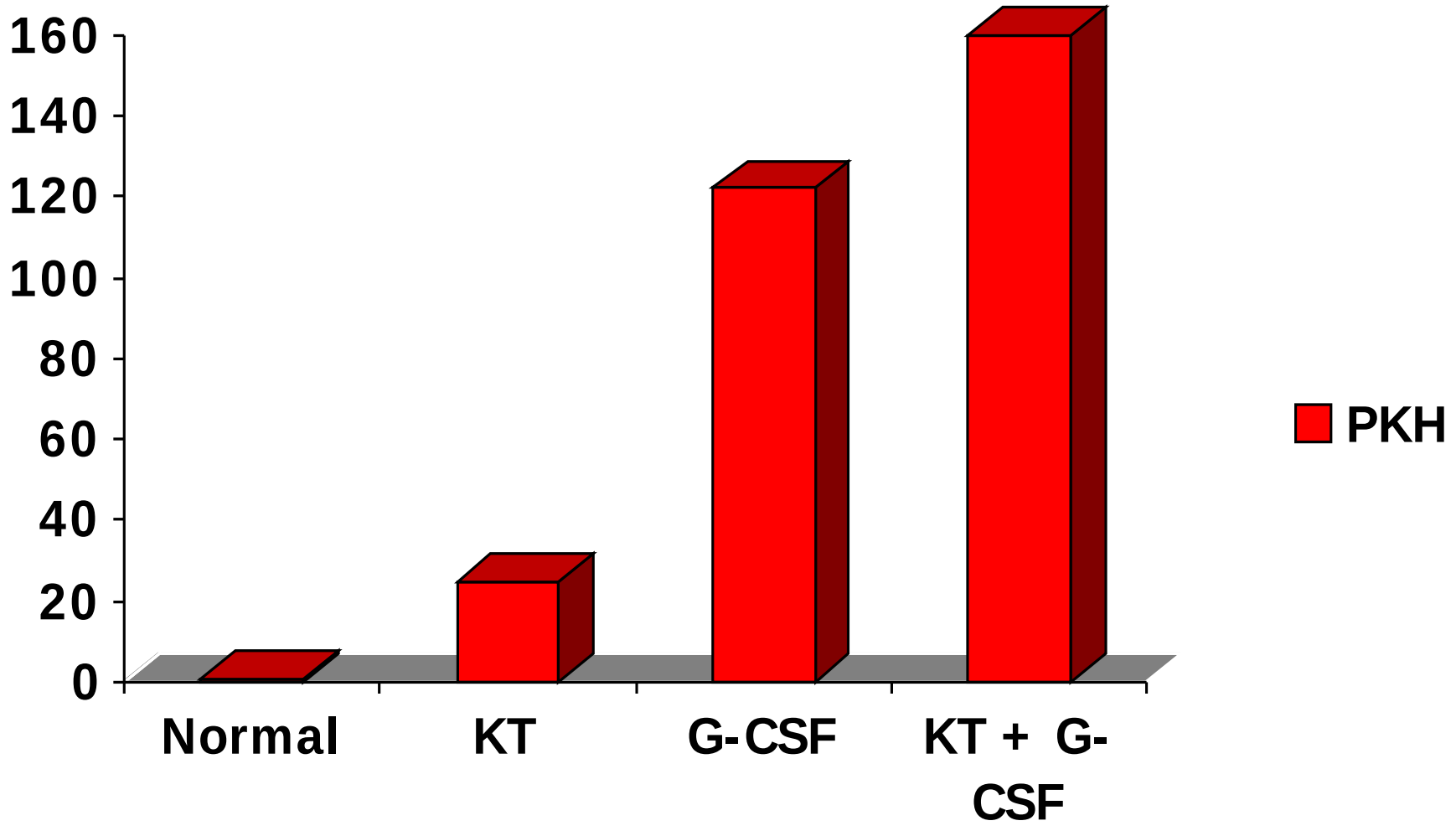
Sinem Civriz Bozdag,[1] Emre Tekgunduz,[2] and Fevzi Altuntas[2]*

[1]Hematology Department, Ankara University School of Medicine, Ankara, Turkey
[2]Hematology Department, Ankara Oncology Training Hospital, Ankara, Turkey

Hemotopoietic stem cell mobilization with cytokines alone, has still been widely accepted as the initial attempt for stem cell mobilization. Chemotherapy based mobilization can be preferred as first choice in high risk patients or for remobilization. But mobilization failure still remains to be a problem in one third of patients. Salvage mobilization strategies have been composed to give one more chance to 'poor mobilizers'. Synergistic effect of a reversible inhibitor of CXCR4, plerixafor, with G-CSF has opened a new era for these patients. Preemptive approach in predicted poor mobilizers, immediate salvage approach for patients with suboptimal mobilization or remobilization approach of plerixafor in failed mobilizers have all been demonstrated convincing results in various studies. Alternative CXCR4 inhibitors, VLA4 inhibitors, bortezomib, parathormone have also been emerged as novel agents for mobilization failure. J. Clin. Apheresis 00:000–000, 2015.

Key words: stem cell mobilization

Periferik Kök Hücre Mobilizasyonu



Altuntas F, et al. Trans Aph Science 2007

Contents lists available at SciVerse ScienceDirect

Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

Which regimen is better for stem cell mobilization of lymphoma patients?

Sinem Civriz Bozdağ [a,*], Emre Tekgündüz [a], Gamze Durgun [a], Abdurrahman Sarıca [b], Itır Şirinoğlu Demiriz [a], Şerife Koçubaba [a], Fevzi Altuntaş [a,b]

[a] Ankara Oncology Education and Research Hospital, Hematology and Stem Cell Transplantation Clinic, Ankara, Turkey
[b] Ankara Oncology Education and Research Hospital, Therapeutic Apheresis Center, Ankara, Turkey

ARTICLE INFO

Article history:
Available online xxxx

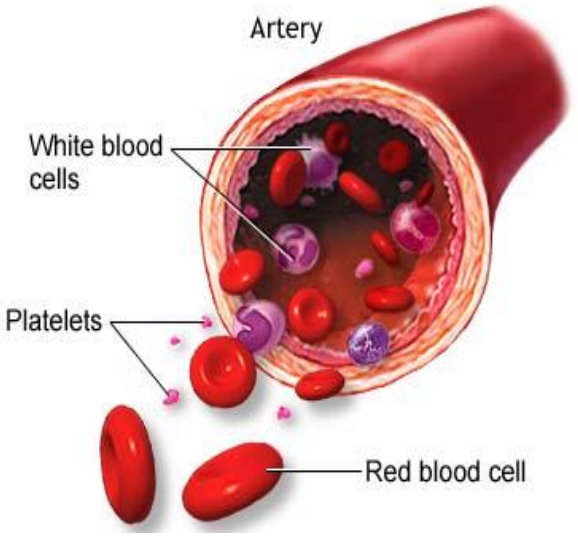
ABSTRACT

Although chemotherapy combined with G-CSF is an effective method for hematopoietic stem cell mobilization, standard chemotherapy protocol leading to best stem cell yield is not defined. In our study, we aimed to assess the impact of chemotherapy choice on mobilization outcome in lymphoma patients. Patients were mobilized with cyclophosphamide (*n*:15), ASHAP (*n*:11) or VGEPP (*n*:12) protocols. Groups were similar according to collected CD34+ cell count, total nucleated cell count and median apheresis days. Five out of fifteen (33%) patients could not be mobilized in Cy group but there was only one failed mobilization attempt in both salvage groups (9% with ASHAP vs 8% with VGEPP). In conclusion, we showed that VGEPP and ASHAP are safe protocols in terms of stem cell mobilization and have similar mobilization capacity as cyclophosphamide alone.

Periferik Kök Hücre

AVANTAJLAR

- Uygulama kolaylıkları
  - Genel anestezi gerektirmiyor
  - Hastaneye yatırılmadan, ayaktan yapılabiliy
  - Daha az travmatik ve ağrısız
- Aferez öncesi transfüzyon gereksinimi daha az
- Nakil sonrası engraftman daha hızlı
- Morbidite ve mortalite oranı daha düşük



L. Bik To, et al. How I treat patients who mobilize hematopoietic stem cells poorly. Blood 2011; 118(17): 4530-4540

Contents lists available at SciVerse ScienceDirect

Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

Predicting the successful peripheral blood stem cell harvesting

Itır Şirinoğlu Demiriz*, Sinem Civriz Bozdağ, Emre Tekgündüz, Bilge Uğur, Gamze Durgun, Şerife Koçubaba, Fevzi Altuntaş

Ankara Oncology Education and Research Hospital, Hematology and Stem Cell Transplantation Clinic, Ankara, Turkey

ARTICLE INFO

Article history:
Available online xxxx

ABSTRACT

Several previously defined factors affecting the mobilization success include age, prior chemotherapy lines, exposure to myelotoxic agents, extended field radiotherapy and bone marrow infiltration with the primary disease. The purpose of this study was to retrospectively analyze the influence of the predictive factors for a successful peripheral stem cell mobilization. We enrolled a total of 145 patients into the study (non-Hodgkin lymphoma (*n*: 40), Hodgkin lymphoma (*n*: 36), myeloma (*n*: 64), solid tumors (*n*:5)) who received autologous stem cell transplantation between 2009 and 2012. In multivariate analysis only platelet count was found to be related with mobilization outcome ($p < 0.05$). Knowing predictive factors for successful mobilization may be useful to define the best timing for mobilization and the most appropriate mobilizing agents for proper patient population.

Transfusion and Apheresis Science 47 (2012) 67–75

Contents lists available at SciVerse ScienceDirect

Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

A feasible shortcut for the mobilization outcome: Steady state CD34 positive hematopoietic stem cells

Meltem Kurt Yüksel [a,*], Emre Tekgündüz [a], Çigdem Sönmez [a], Pervin Topcuoglu [b], Arzu Yurtcu [a], Itır Demiriz [a], Ayşegül Tetik [a], Ömür Kayıkçı [a], Murat Cınarsoy [a], Fevzi Altuntaş [a]

[a] Ankara Oncology Research and Education Hospital, Hematology and Stem Cell Transplantation Unit, Ankara, Turkey
[b] Ankara University School of Medicine, Hematology and Stem Cell Transplantation Unit, Ankara, Turkey

Transfusion and Apheresis Science 47 (2012) 77–80

Contents lists available at SciVerse ScienceDirect

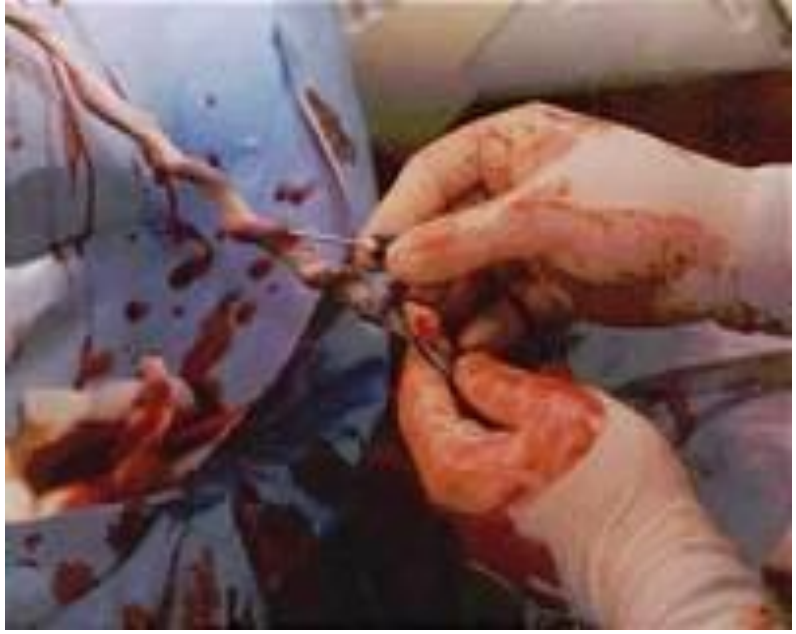
Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

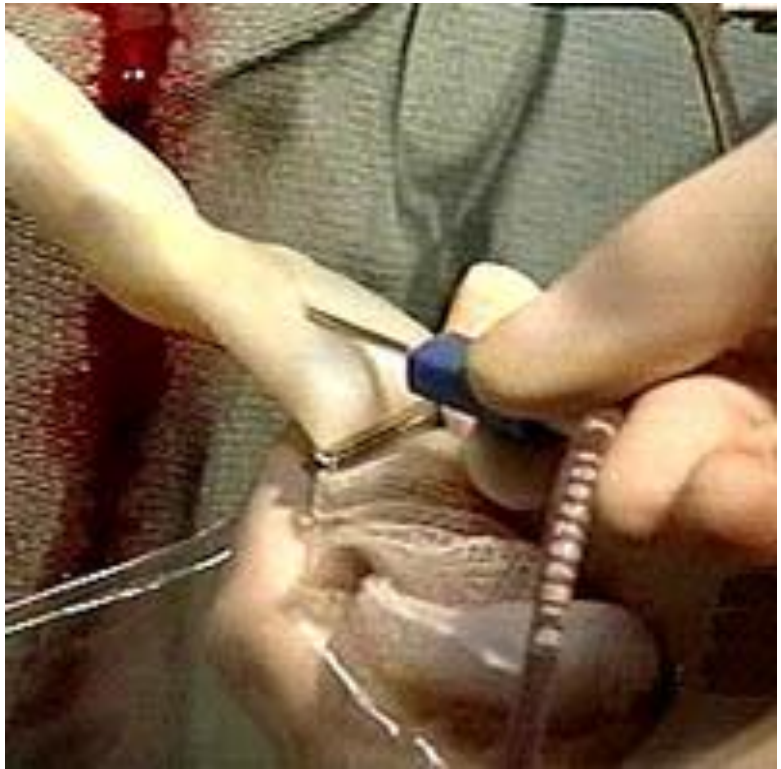
Plerixafor use in patients with previous mobilization failure: A multicenter experience

Emre Tekgündüz [a], Fevzi Altuntaş [a,*], Serdar Şıvgın [b], Şahika Zeynep Akı [c], Ayhan Dönmez [d], Pervin Topçuoğlu [e], Rahşan Yıldırım [b], Nuran Ahu Baysal [c], Erol Ayyıldız [e], Meltem Kurt Yüksel [a], İsmail Sarı [f], Murat Tombuloğlu [d], Ali Ünal [b], Osman İlhan [e]

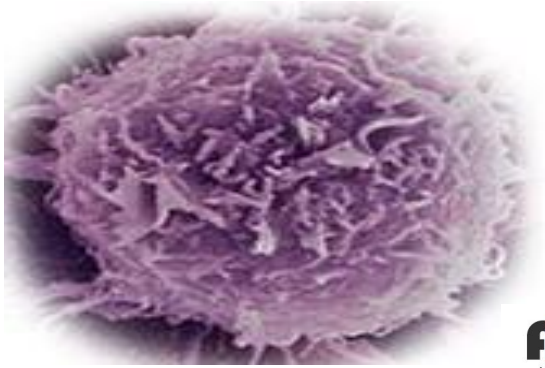
[a] Ankara Oncology Education and Research Hospital, Hematology and Stem Cell Transplantation Clinic, Demetevler-Yenimahalle, 06200 Ankara, Turkey
[b] Medical Faculty, Department of Internal Medicine, Division of Hematology, Erciyes University, Turkey
[c] Medical Faculty, Department of Internal Medicine, Division of Hematology, Gazi University, Turkey
[d] Medical Faculty, Department of Internal Medicine, Division of Hematology, Ege University, Turkey
[e] Medical Faculty, Department of Internal Medicine, Division of Hematology, Ankara University, Turkey
[f] Medical Faculty, Department of Internal Medicine, Division of Hematology, Pamukkale University, Turkey



Kordon Kanı Kök Hücre Toplama



Çekirdekli hücrelerin %0.3



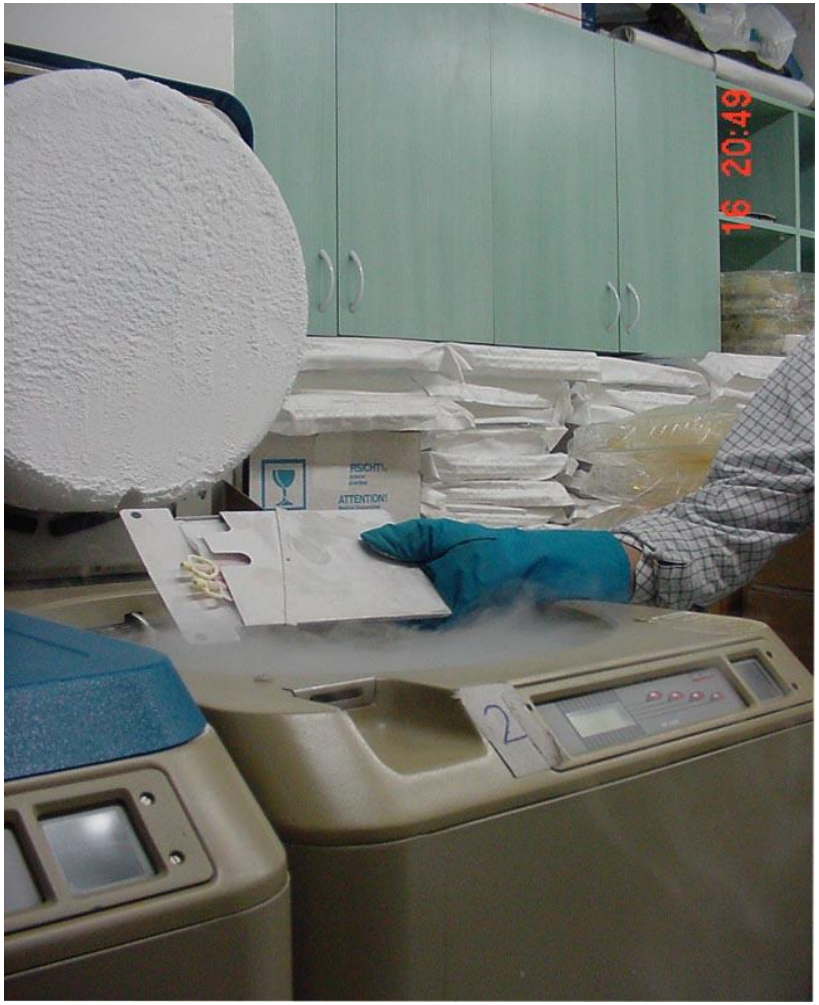
Kord kanı

- Kök hücreden zengin bir kaynak
- Miktar az (75-200 cc): toplam kök hücre sayısı/kg başına sınırlı
  - 50 kg kadar bireyler için yeterli
- Kök hücreler PK veya Kİ' ne göre daha az
  - Graft yetmezliği ve engraftman gecikmesi
- Proliferasyon hızı yüksek
  - Düşük miktarda kök hücre tolere edilebilir
    - **2 x10^6 CD34+ hücre/kg**
    - **2 x10^7 NC/kg**

Kord Kanı

- Graft rejeksiyon ve GVHH gelişme riski daha düşüktür
- Kısmi HLA match (4/6) durumu tolere edilebilir
  - **Donor bulmayı ve donor havuzu oluşturmayı kolaylaştırmakta**
- Allojeneik veya Otolog amaçlı uygulanabilir
- Kordon kanı ile akraba dışı donörden Kİ/PK KHT yapılması arasında sağ kalım farklılığı yok
  - Pediatrik yaş grubunda, kordon kanı ile KHT, "akraba dışı" donörden yapılan Kİ/PK KHT'ye iyi bir alternatif olabilir

Kök Hücre Toplama ve Dondurma



Kök Hücre Saklanması


- Bilgisayarlı kademeli dondurucuda dondurulup -196° C de sıvı azot tankına aktarılır
- 10 yıl üzerinde saklanabilir

Contents lists available at SciVerse ScienceDirect

Transfusion and Apheresis Science

journal homepage: www.elsevier.com/locate/transci

Microbial contamination of hematopoietic progenitor cell products

Sinem Namdaroğlu [a,*], Emre Tekgündüz [a], Sinem Civriz Bozdağ [a], Gamze Durgun [a], Abdurrahman Sarıca [b], Itır Şirinoğlu Demiriz [a], Şerife Koçubaba [a], Gülşen İskender [c], Ömür Kayıkçı [a], Fevzi Altuntaş [a,b]

[a] Ankara Oncology Education and Research Hospital, Hematology and Stem Cell Transplantation Clinic, Ankara, Turkey
[b] Ankara Oncology Education and Research Hospital, Therapeutic Apheresis Center, Ankara, Turkey
[c] Ankara Oncology Education and Research Hospital, Department of Clinical Microbiology and Infectious Diseases, Ankara, Turkey

ARTICLE INFO

Article history:
Available online xxxx

ABSTRACT

Introduction: Microbial screening for contamination is a part of hematopoietic progenitor cell (HPC) collection and infusion procedure. We aimed to find out our microbial contamination rates during collection, processing and infusion steps of HPC products. We also evaluated the clinical course of patients who received contaminated HPC products.

Patients-methods: We retrospectively analyzed microbial contamination records of HPC grafts between 2010 and 2012. HPC products of autologous donors were evaluated for contamination at three steps: at the end of mobilization, following processing with DMSO and just before stem cell infusion. Grafts of allogeneic donors were assessed only before HPC transplantation (HCT). Microbiological analysis of HPC samples were performed with an automated system (BacT/Alert®).

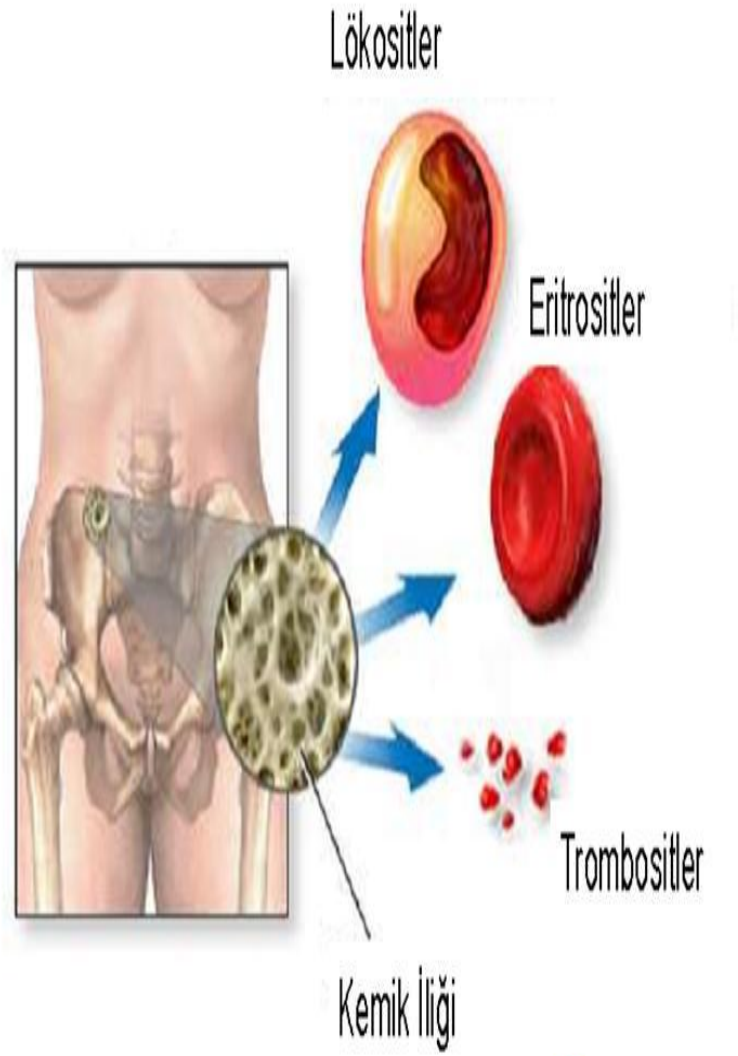
Result: During the study period a total of 492 mobilization procedures were performed on 329 (214 autologous and 115 allogeneic) donors. Bacterial contamination has been detected in 103 of 1630 samples (6%). Ninety-seven out of 1162 blood samples (8%) from 265 patients who were treated with HCT were contaminated. Forty-six patients (41 autologous and 5 allogeneic) were transplanted with contaminated HPC products. During HCT 42 patients experienced febrile neutropenic attack and 34 of them had positive blood culture results. In none of these 34 patients the isolated pathogens were the same organisms with those found in the final contaminated stem cell product before stem cell infusion. None of the patients who received contaminated products died because of sepsis within the posttransplant 30 days. There was no significant difference between patients who received contaminated and non-contaminated products in terms of the first day of fever, duration of fever, engraftment kinetics and duration of hospitalization.

Conclusion: Our results suggest that microbial contamination of HPC products is an issue to be prevented, although it may not have a major impact on the general success of HCT.

CD34 Dozu

Hematopoetik yapılanma

- Otolog KHT
  - **> 2 x10^6 CD34+ hücre/kg**
- Allojeneik KHT
  - **> 5 X10^6 CD34+ hücre/kg**
- Kord Kanı KHT
  - **> 2 x10^6 CD34+ hücre/kg**



Hematopoetik Kök Hücre NAKLİ

Hematopoetik kök hücre nakli TERMİNOLOJİ

- **Kaynak**
  - Kemik İliği
  - Periferik Kan
  - Kord Kanı

- **Verici**
  - Allojeneik
    - Akraba
    - Akraba dışı
  - Otolog
  - Singeneik

- **Hazırlık rejimi**
  - Myeloablatif
  - Azaltılmış yoğunluk
  - Nonmyeloablatif

KÖK HÜCRE NAKLİ NASIL YAPILIR ?

Hastaya kemoterapi tedavisi ve kök hücre nakli için kateter takılır.

Belirlenen nakil tarihinden 5-10 gün önce
Hastalığın tedavisi ve hastaya ait kök hücrelerin yok edilmesi amacı ile
kemoterapi ve/veya radyoterapi tedavisi verilir.

Daha önceden toplanıp dondurulan veya donörden aynı gün toplanan kök hücre kateter yolu ile hastaya verilir.

Allojeneik Kök Hücre Nakli
AMAÇ

- Belirli bir hazırlama rejimi sonrası hematopoietik veya immünopoietik orijinli bir maligniteyi yok etmek.
- Bu şekilde boşaltılan kemik iliği kavitesine verici orijinli hematoimmünopoietik dokuyu oluşturacak kök hücreleri yerleştirmek.

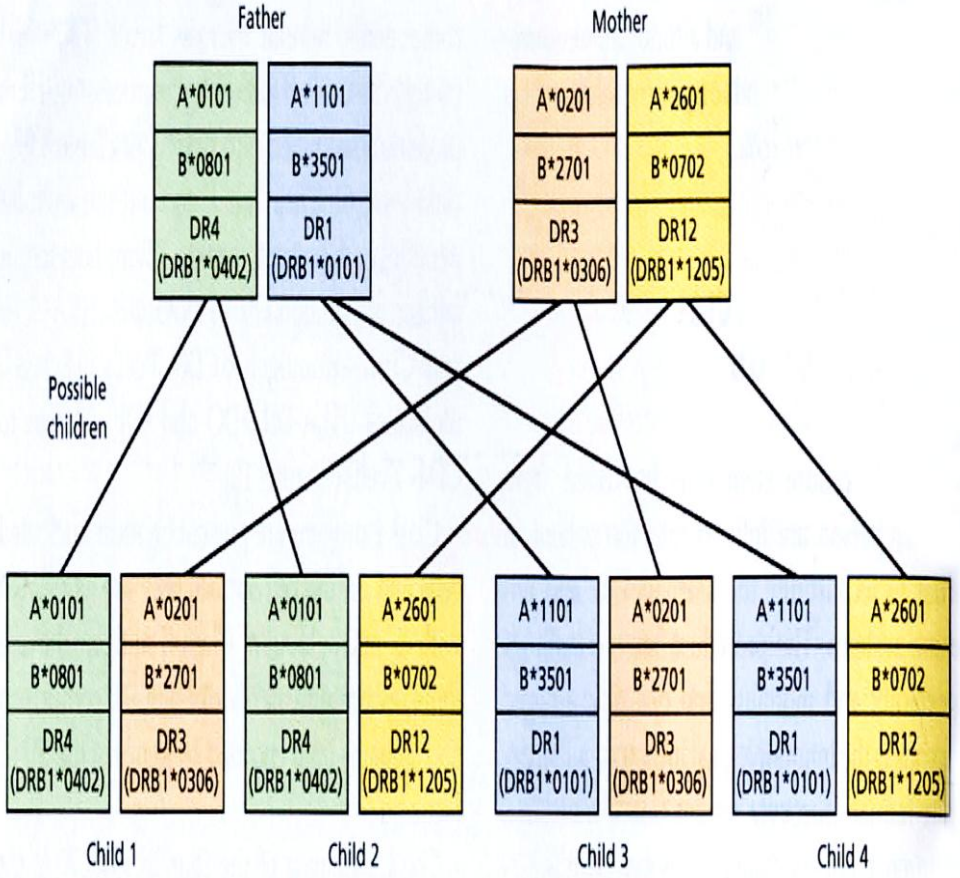
Verici seçim kriterleri

Verici özellikleri

1. HLA uyumu- en iyi verici
2. Cinsiyet (erkek)
3. Yaş (genç)
4. İnfeksiyöz testler (CMV)
5. Önceki antijen maruziyeti
6. Ağırlık
7. Donasyon tipi

Verici seçiminde en önemli kriter = **HLA UYUMU'dur.**

Alıcı Verici İnsan Lökosit Antijenleri (HLA) Uyumu (Karşılaştırılması)

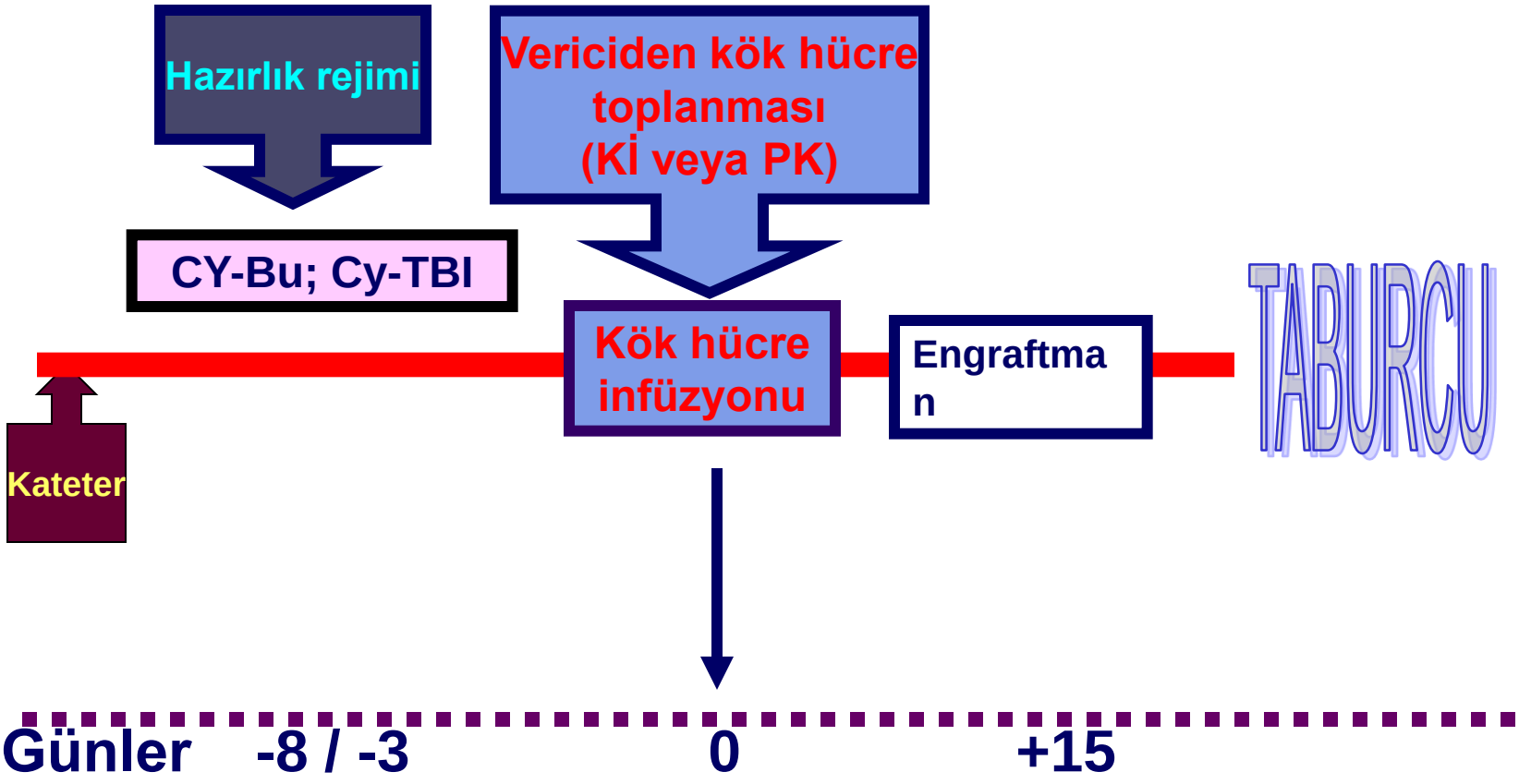


HLA (İNSAN LÖKOSİT ANTİJENİ):

- Kök hücre nakillerinde hasta ve donör arasında uyumluluğu belirler.
- Eğer nakil esnasında HLA uyumu yoksa alıcı dışardan verilen hücreleri yabancı madde olarak algılar ve nakil daha en baştan başarısızlığa uğrar.
- HLA'nızın yarısını anneden diğer yarısını babadan alınır.
- Kök hücre nakli yapılacak kişi için verici ararken HLA uygunluğu aranır.
- Önerilen tarama HLA-A, HLA-B HLA-C, HLA-DR, HLA-DQ uyumluluğu üzerinden yapılır.

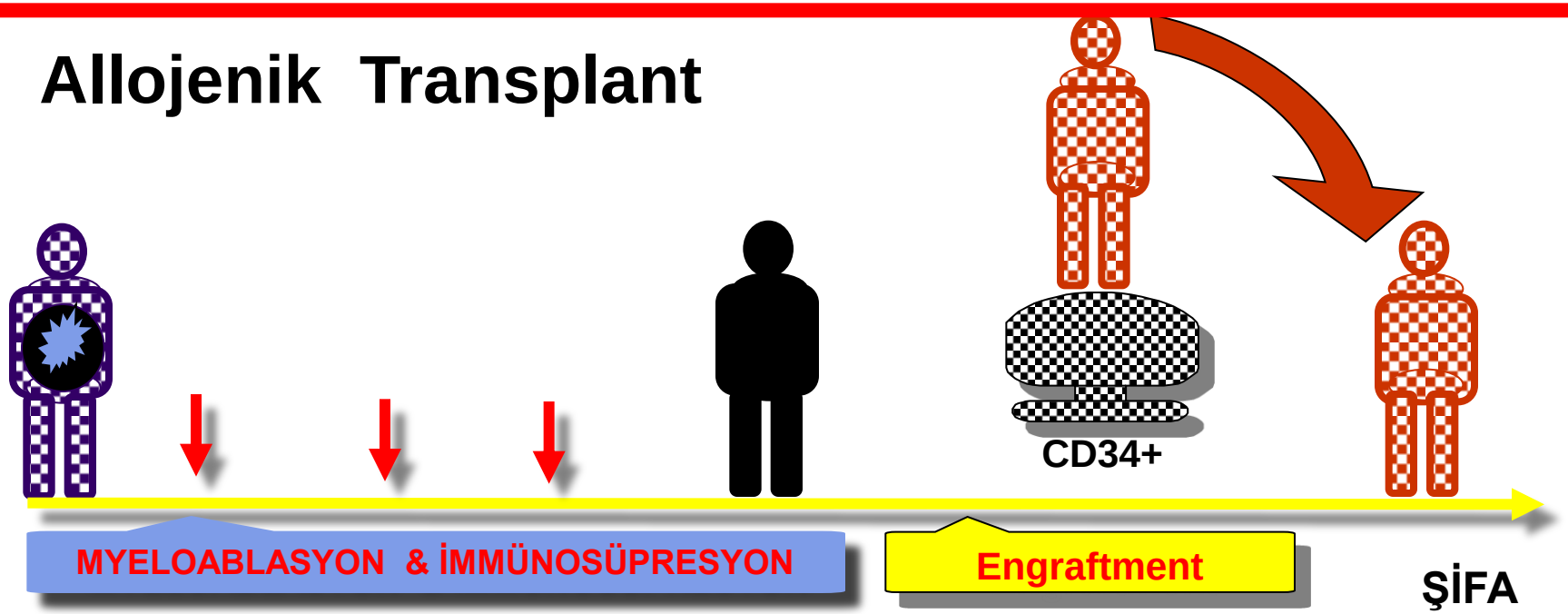
Minimum: Kardeş 6/6; Akraba dışı 8/8

ALLOJENEİK NAKİL AKIŞ ŞEMASI



TRANSPLANT TİPLERİ
Allojeneik Kök Hücre Nakli

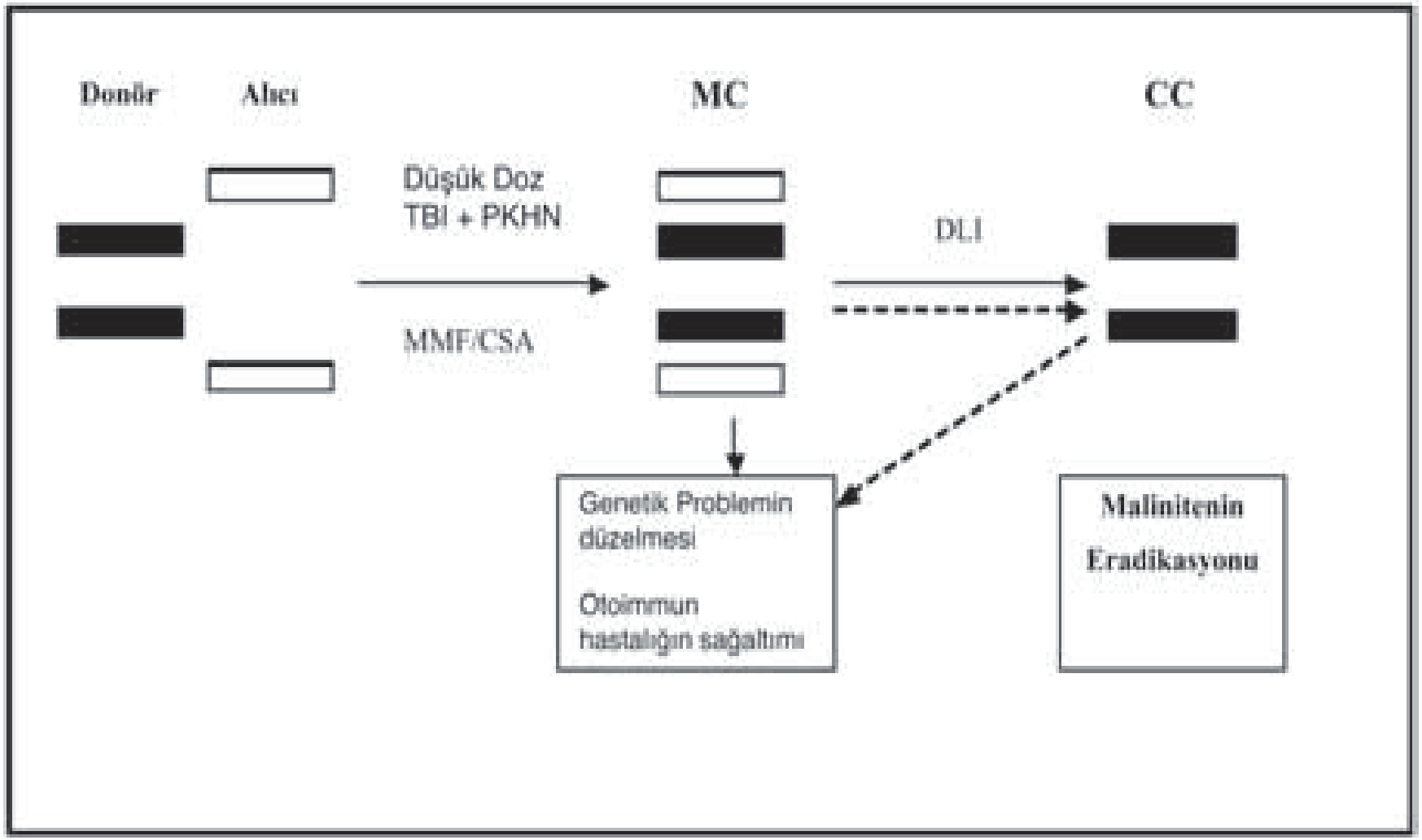
Allojenik Transplant



- HLA uygunluk gerekir (HLA- A, B, C, DR, DQ)= 6/6-10/10
- Kardeş-akraba (Matched Sibling)- minimum 6/6
- Uyumlu Akraba dışı (Matched Unrelated)- minimum 8/8
- Kemik iliği bankalarından taranan 30 milyon üzerinde verici

❑ **MORTALİTE FAZLA, ANCAK KÜR ORANI YÜKSEK**

Allojeneik Kök Hücre Nakli
Kimera



Toparlanma: İmmün Yeniden Yapılanma

Nötrofiller	2-4 hafta
İmmünoglobulin	3-6 ay
T lenfositler	6-12 ay

Allojeneik Kök Hücre Nakli

Avantajları

- ***Graft Vs Tumor (+)***
  - **Malign hücrelere karşı verici immün cevabı**
- ***Potansiyel KÜR***

Dezavantajları

- ***Yüksek Mortalite***
  - **GVHH (±)**
  - **Infeksiyonlar**
    - **profilaktik antibiyotik, antifungal**
    - **immunsupresif tedavi**
  - **Graft Rejeksiyonu**
    - **1% veya az**

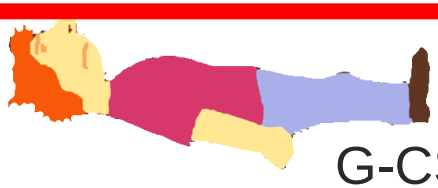
⬇

<60 yaş

Allojeneik Kök Hücre Nakli
Komplikasyonları

Erken (<100 gün)	Geç (>100gün)
İnfeksiyonlar: **Bakteriyel, fungal, HSV, CMV**	**İnfeksiyonlar:** Varicella zoster, kapsüllü bakteriler
Akut GVHH: Deri, karaciğer, barsak	**Kronik GVHH:** Artrit, hepatit, malabsorbsiyon, sikleroderma, sikka sendromu, liken, pulmoner hastalık, ciddi efüzyonlar
Hemoraji	**Kronik pulmoner hastalık**
Graft yetersizliği, aplastik anemi	**Otoimmün yetmezlik**
Hemorajik sistit	**Katarak**
İntertisyel pnönoni	**İnfertilite**
VOD, kardiak yetmezik	**İkincil maligniteler**

İmmünosuppresyon ile engrafman ve GVHH'den korunma



G-CSF

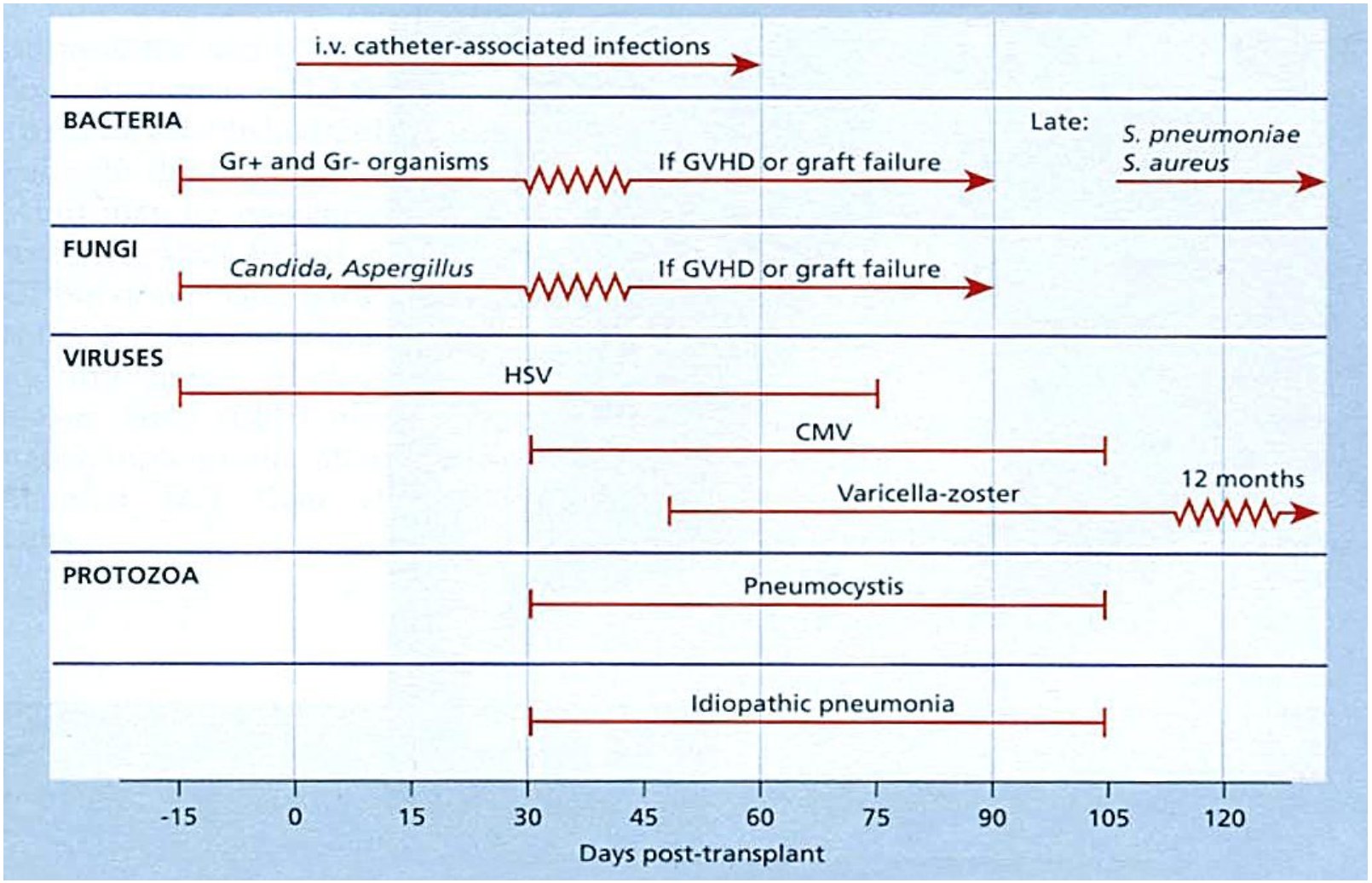
CSA
Mtx

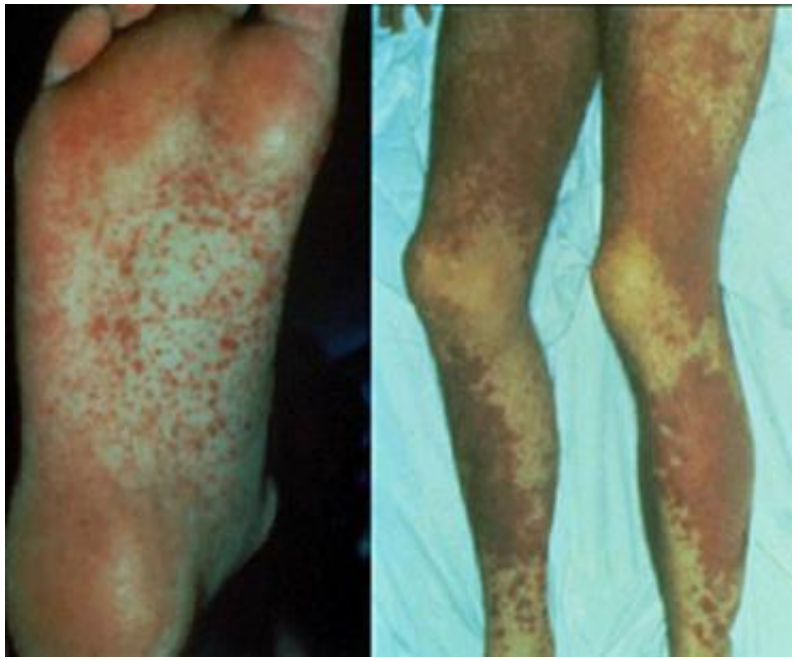
Levofloxacin
Asiklovir
Flukonazol

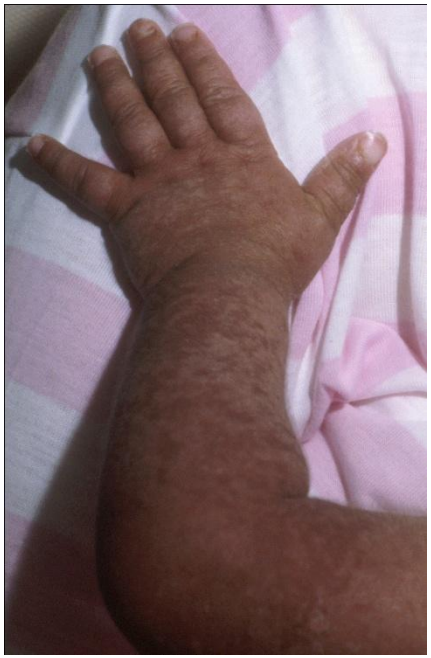
Trimethoprim-
sulfamethoxazole

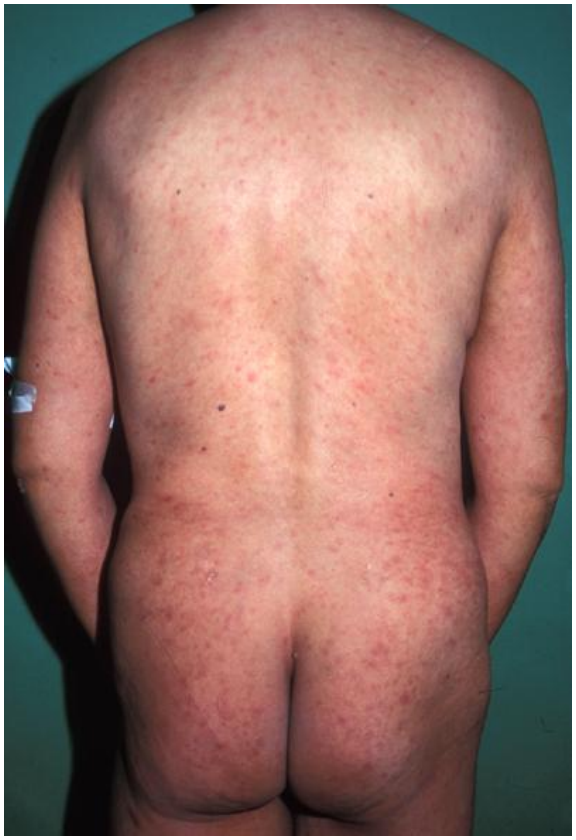
IV immunoglobulin

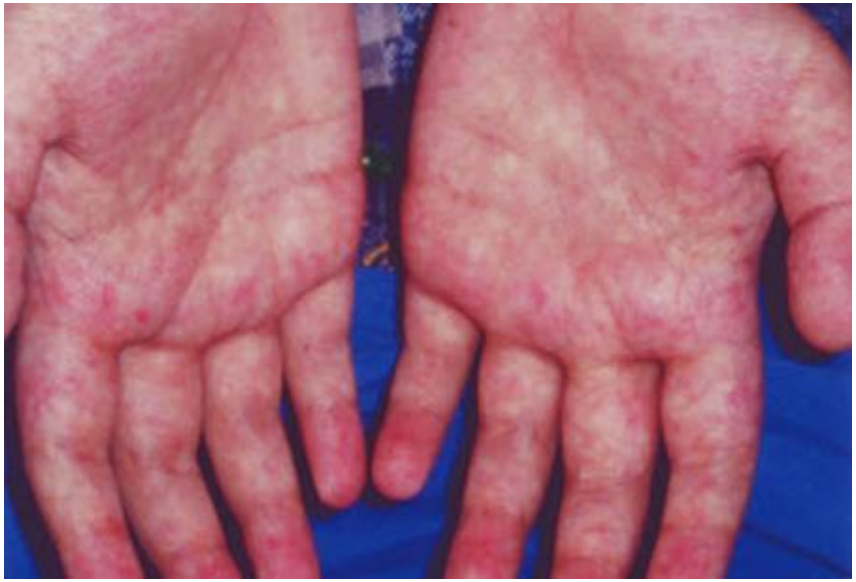
İnfeksiyöz Komplikasyonlar











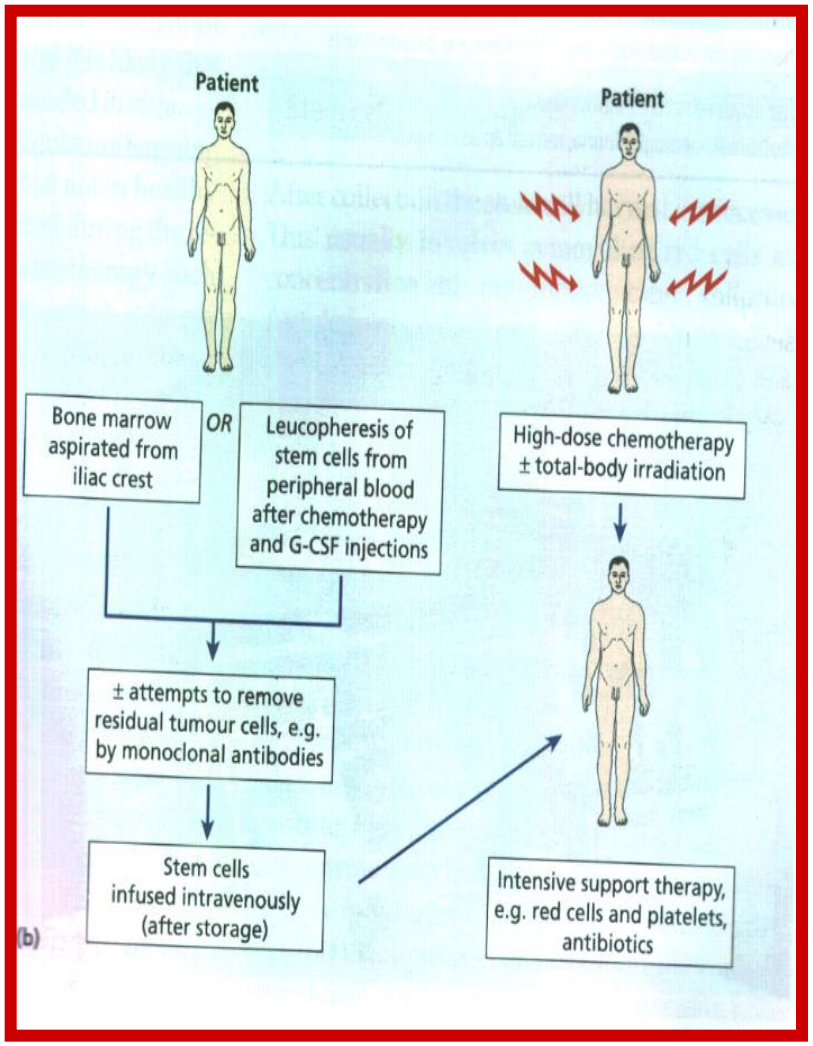
Otolog Kök Hücre Nakli

Kemosensitif malignitelerde yüksek doz kemoterapi verilmek için yapılan işlemdir.

Otolog Kök Hücre Nakli

- Yüksek doz kemoterapi alan hastalarda kemik iliği yetmezliği olmakta ve hasta ölmektedir.
- Bunu önlemek için hastanın hematopeietik kök hücreleri toplanır ve uygun şartlarda dondurulur.
- Daha sonra hastaya yüksek doz tedavi verilir.
- 24 saat sonra dondurulan kök hücreleri eritilerek katater aracılığı ile hastaya geri verilir.

Otolog Kök Hücre Nakli AMAÇ



- Kemoterapi ve Radyoterapiye duyarlı tümörlerde kemik iliği aplazisine yol açabilecek kadar **yüksek dozda KT ± RT uygulayabilmek.**

OTOLOG NAKİL AKIŞ ŞEMASI

Kök hücre çözdürülür

Enfüzyon

Mobilizasyon Rejimi

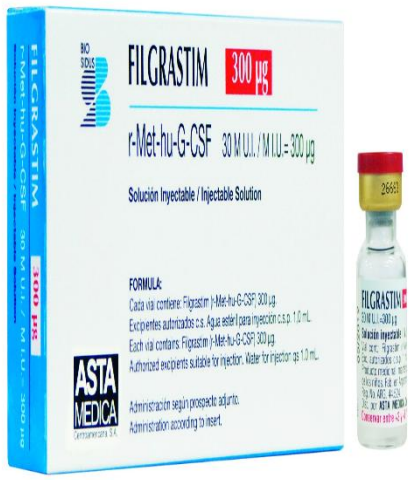
Kök Hücre Aferezi

Kriyo-prezervasyon

Yüksek Doz Kemoterapi

OPKH Nakli

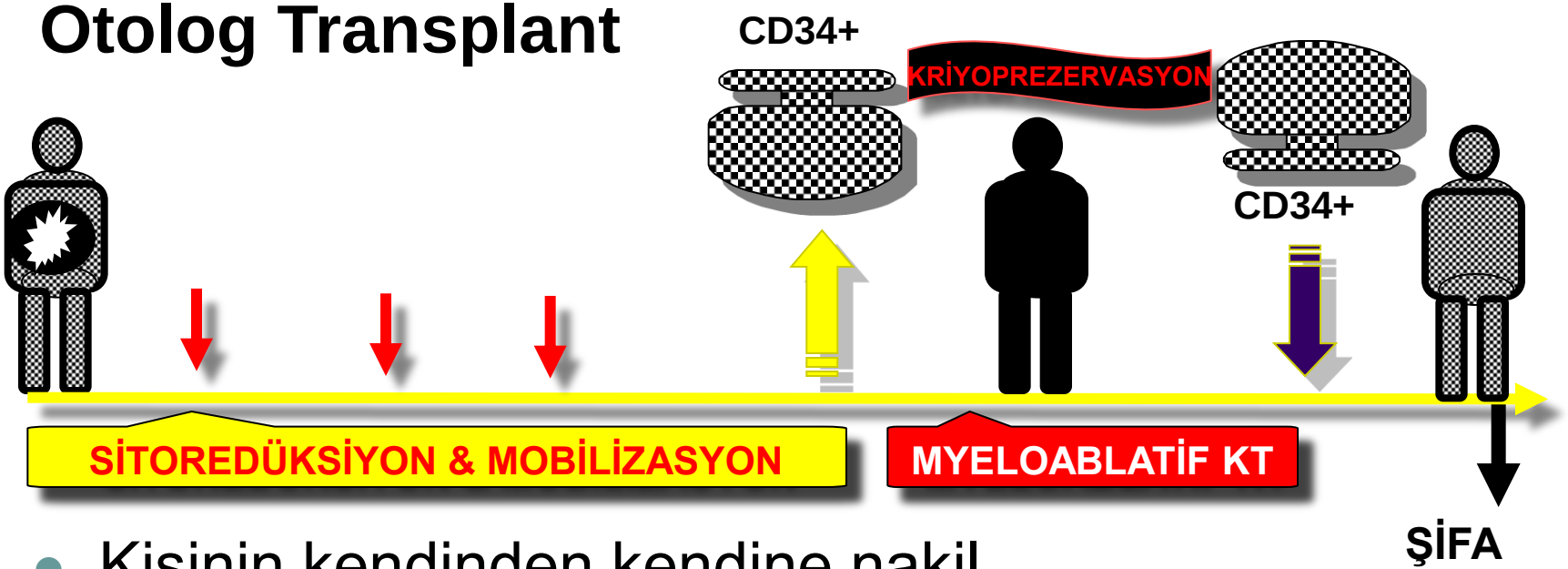
Zaman



TRANSPLANT TİPLERİ

Otolog Kök Hücre Nakli

Otolog Transplant



- Kişinin kendinden kendine nakil
- Kemik İliği ablasyonu nedeni ile ulaşılamayan terapötik dozlara ulaşma imkanı verir.
  - Hastalığa yenik düşmüş immünite mevcut,
  - Graft versus tümör etkisi yok

Otolog Kök Hücre Nakli

Avantajları

- Düşük mortalite
  - <1%
  - Rejeksiyon (-)
  - GVHH (-)
  - Daha az enfeksiyon

⬇

- 70 yaş ve ilerisi…

Dezavantajları

- Düşük kür oranı
  - Graft Vs Tumor (-)
  - Tümör kontaminasyonu

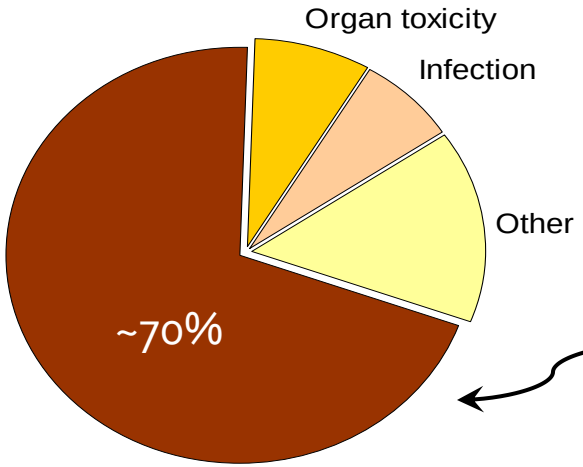
KÖK HÜCRE NAKLİ TİPLERİ?

OTOLOG NAKİL	ALLOGENEİK NAKİL
Donör taraması gerekmez	Kardeşlerde uyum şansı ~ % 25
Nüks olasılığı yüksek	Tamamen iyileşme şansı daha yüksek
Tedavi ilişkili ölüm % 2-5	Tedavi ilişkili ölüm % 20-40
İmmunoterapi özelliği yok	Malign hücrelere karşı verici immün cevap
Hastanın kök hücrelerini korumayı amaçlar	Hastanın kök hücresini değiştirmeyi amaçlar

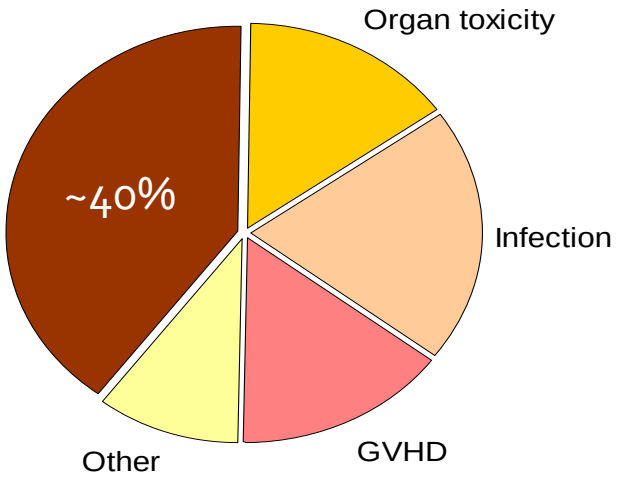
OTOLOG

ALLOJENEİK

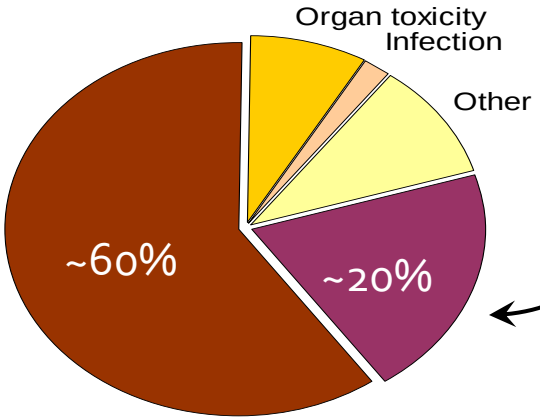
ERKEN ÖLÜMLER



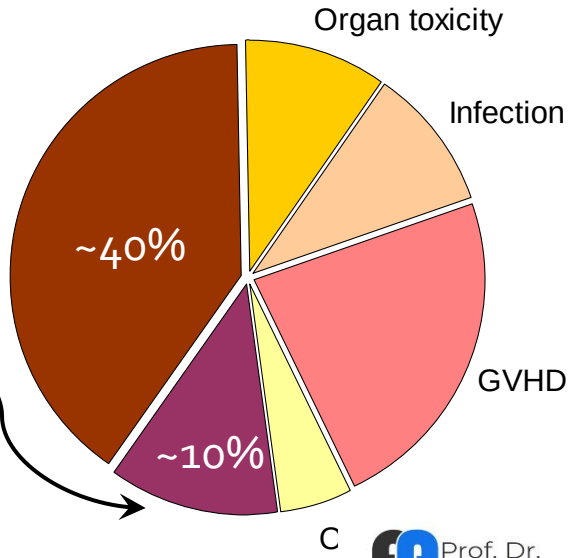
RELAPS



GEÇ ÖLÜMLER

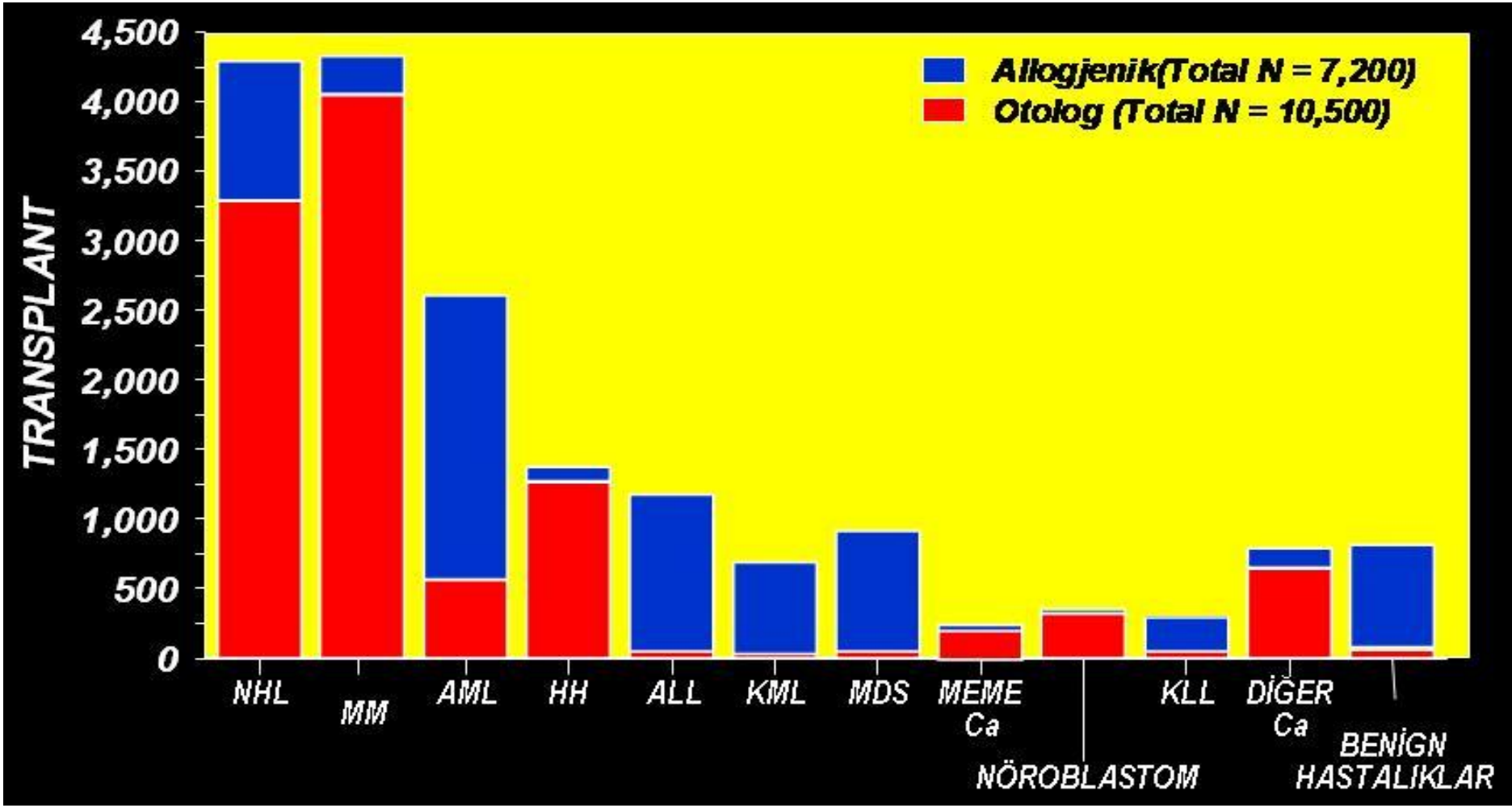


İKİNCİL KANSERLER



Hematopoetik Kök Hücre
ENDİKASYONLAR

KÖK HÜCRE NAKLİ ENDİKASYONLARI
KUZEY AMERİKA



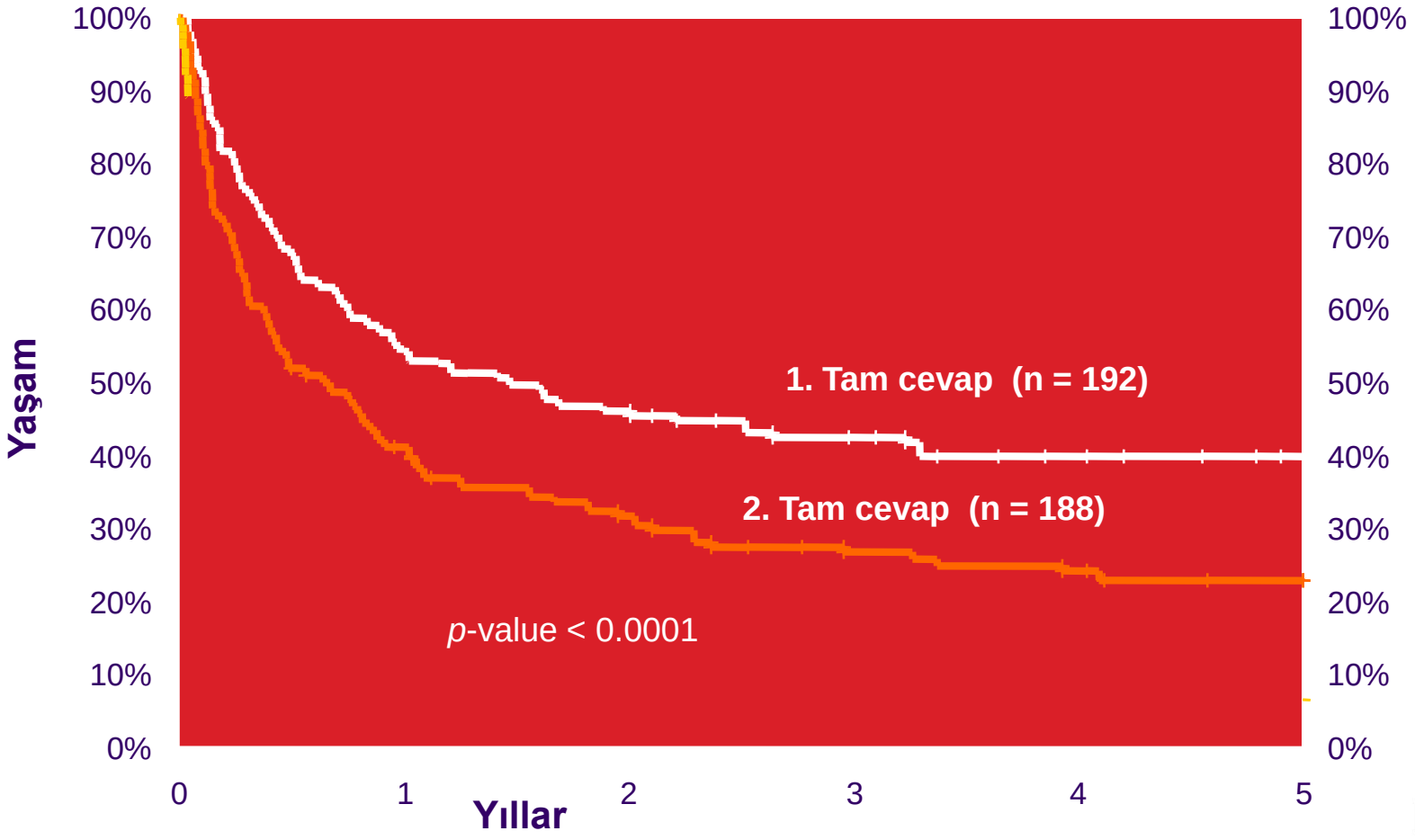
HASTALIK	Hasta	İşlem
Akut lösemi (tiplendirilmemiş)	506	546
AML	26792	28827
	18454	19642
Undiferansiye akut lösemi	234	251
Bifenotipik akut lösemi	164	186
Sekonder akut lösemi	1563	1742
Kronik lösemi (tiplendirilmemiş)	252	275
KML	16319	17484
KLL	2154	2299
KPL	78	83
Lenfoma (tiplendirilmemiş)	1603	1694
NHL	34602	37873
Hodgkin L	12194	13304
Plazma hücre hastalıkları (tiplendirilmemiş)	715	820
Multiple myeloma	25315	33357
Plazma hücreli lösemi	278	358
Plazmasitoma	631	879
Amiloidozis	538	576
	15813	20468
Meme Kanseri	8379	10544
MDS veya MPS (tiplendirilmemiş)	233	262
Myelodisplastik sendrom	4150	4570
Myeloproliferatif sendrom	696	749
MDS & MPS	517	593
Aplastik anemi	4691	5175
Immun yetmezlikler	1820	2068
Diğer kalıtsal bozukluklar	750	842
Oto-immun hastalıklar	446	463
Hemoglobinopatiler	2462	2549
Kodlanmayan	105	112
bilinmeyen	108	118
TOTAL	182562	208711

EBMT

Standart Tedavide Allogenik Transplantasyon

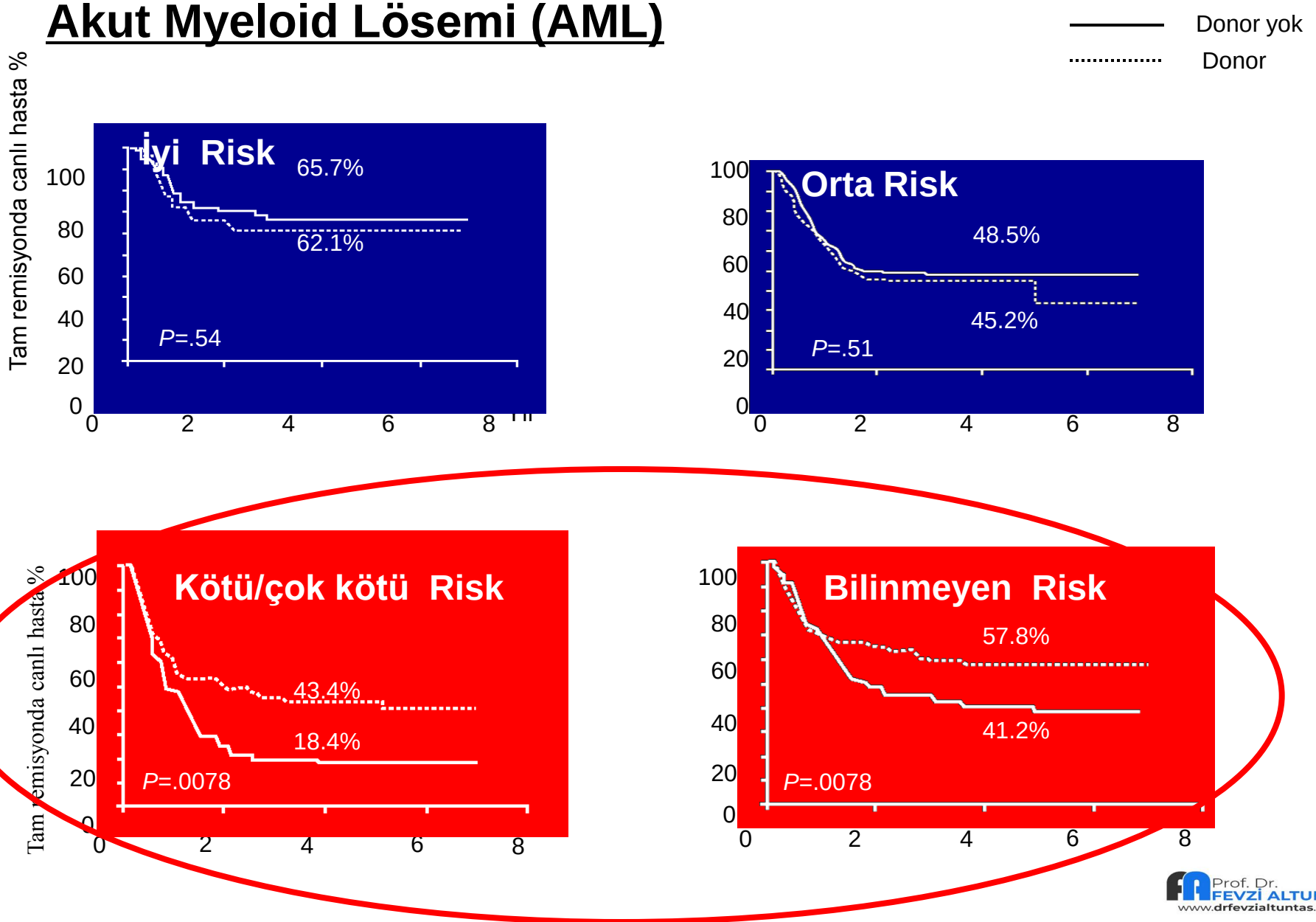
Akut Lenfoblastik Lösemi

- < 60 yaş hastalar
- Uzun dönem sonuçları yüz güldürücü değil (30-40% OS)



Standart Tedavide Allogenik Transplantasyon

Akut Myeloid Lösemi (AML)



Standart Tedavide Otolog Transplantasyon

- **Multiple Myeloma**
  - Yaşam süresini 3 - 5 yıl uzatmakta…

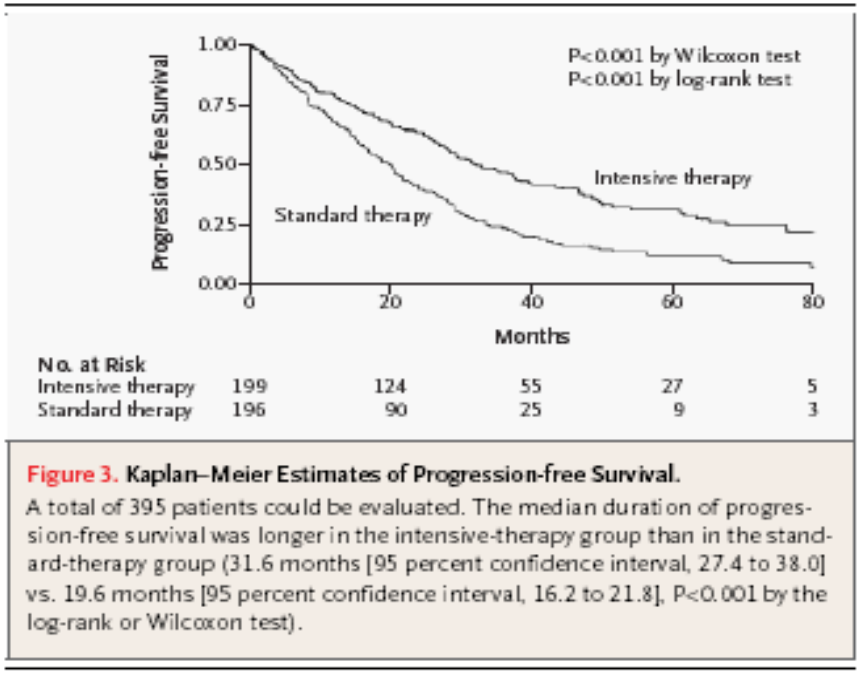


Figure 3. Kaplan–Meier Estimates of Progression-free Survival.
A total of 395 patients could be evaluated. The median duration of progression-free survival was longer in the intensive-therapy group than in the standard-therapy group (31.6 months [95 percent confidence interval, 27.4 to 38.0] vs. 19.6 months [95 percent confidence interval, 16.2 to 21.8], P<0.001 by the log-rank or Wilcoxon test).

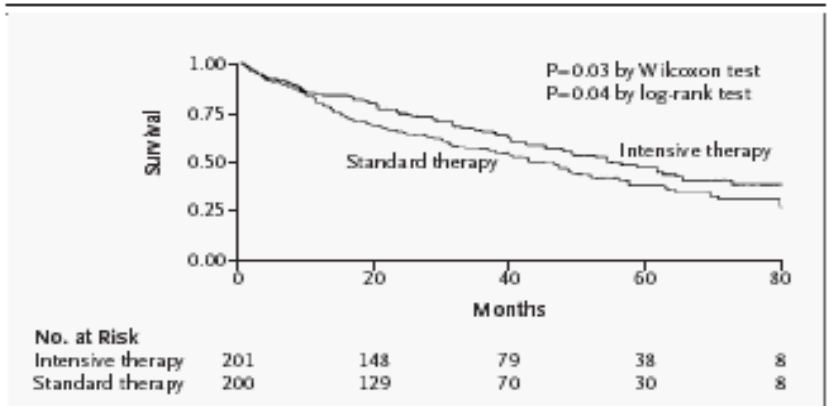
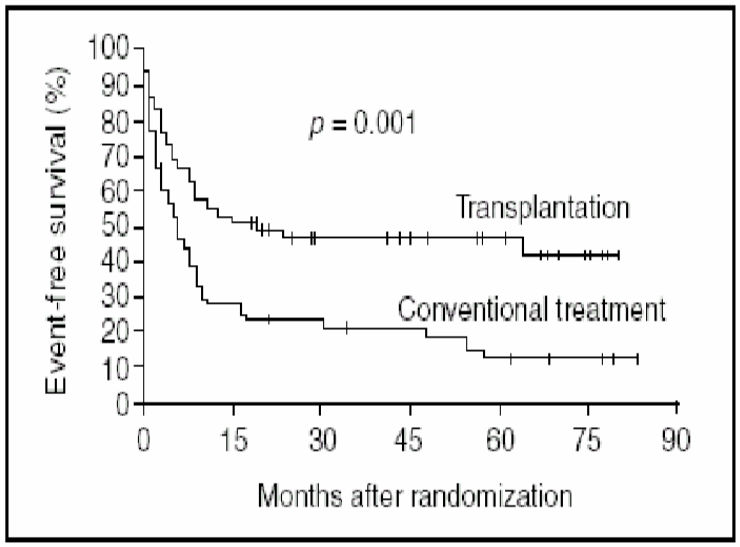


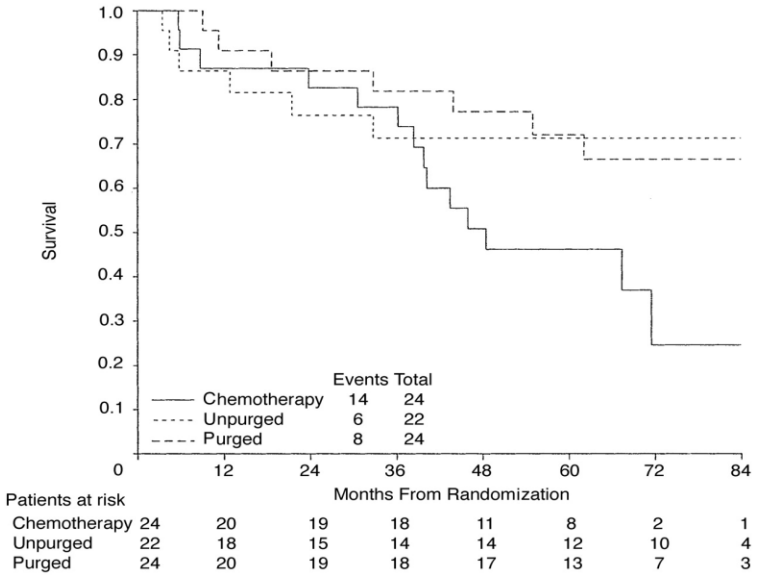
Figure 2. Kaplan–Meier Estimates of Overall Survival in the Intention-to-Treat Population.
Overall, there was an improvement in median survival of 11.8 months in the intensive-therapy group (median survival, 54.1 months; 95 percent confidence interval, 44.9 to 65.2) as compared with the standard-therapy group (42.3 months; 95 percent confidence interval, 33.1 to 51.6; P=0.04 by the log-rank test and P=0.03 by the Wilcoxon test).

Standart Tedavide Otolog Transplantasyon

- Non-Hodgkin Lenfoma
  - Relaps veya bir kısım refrakter NHL
    - %60-65 uzun süreli yaşam



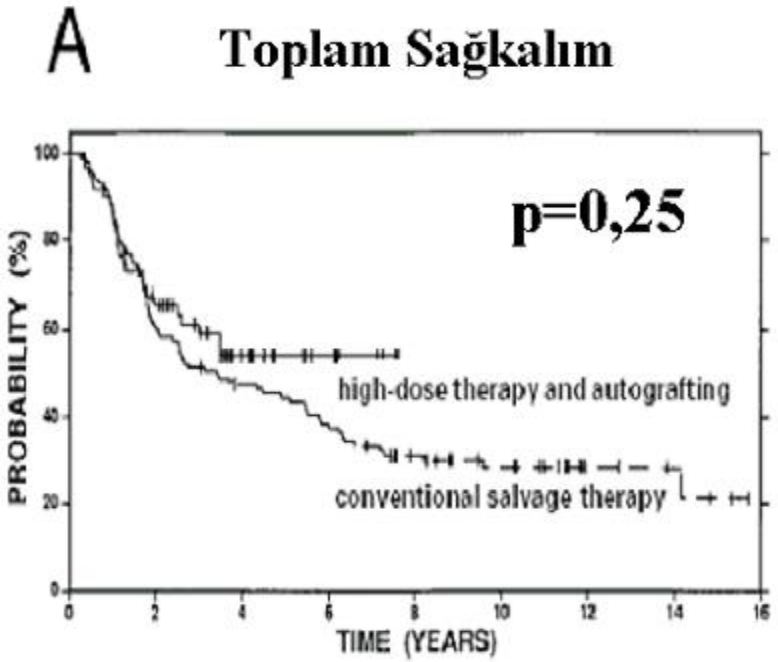
PARMA Çalışması



CUP Çalışması

Standart Tedavide Otolog Transplantasyon

- Hodgkin Hastalığı
  - Relaps ve refrakter hastalıkta



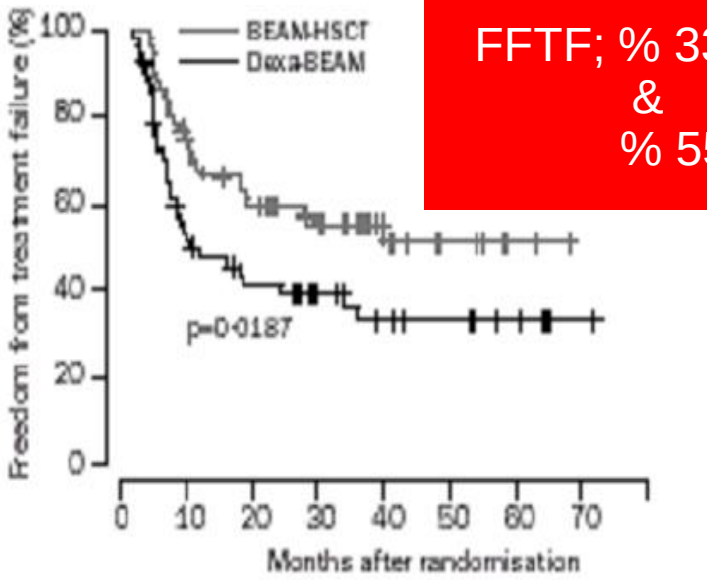
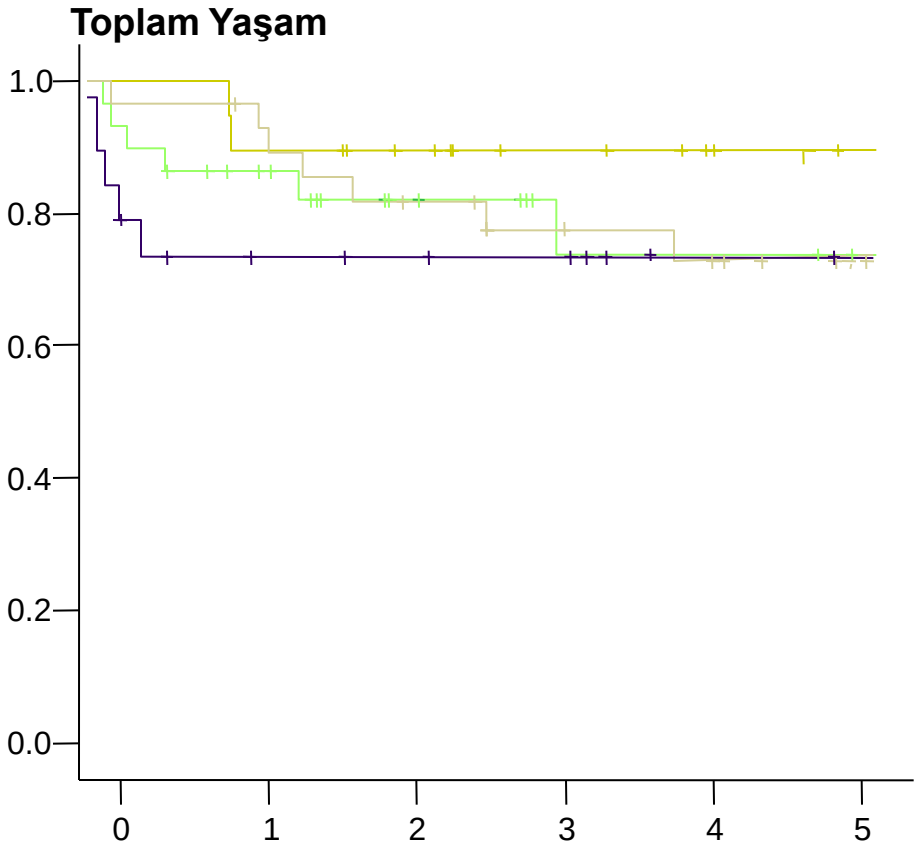


Figure 3: Freedom from treatment failure for patients with relapsed chemosensitive Hodgkin's disease

FFTF; % 33 & % 55

Standart Tedavide Allogenik Transplantasyon

Aplastik Anemi

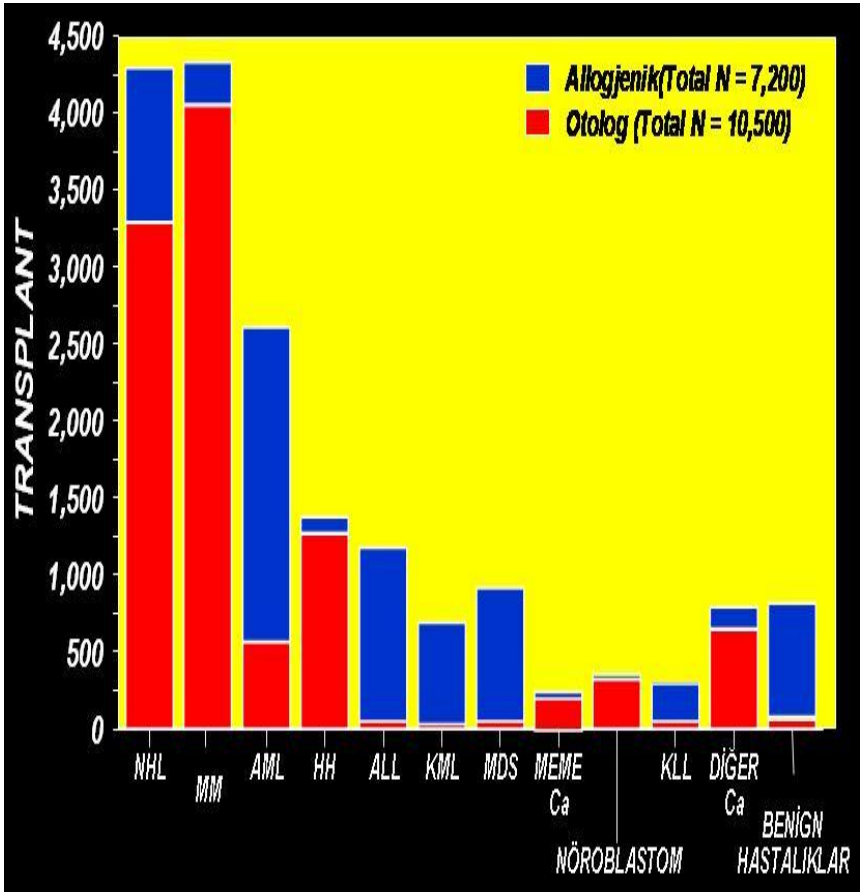


- <20 yaş başarı ⇑
- >40 yaş başarı ⇓

KÖK HÜCRE NAKLİ

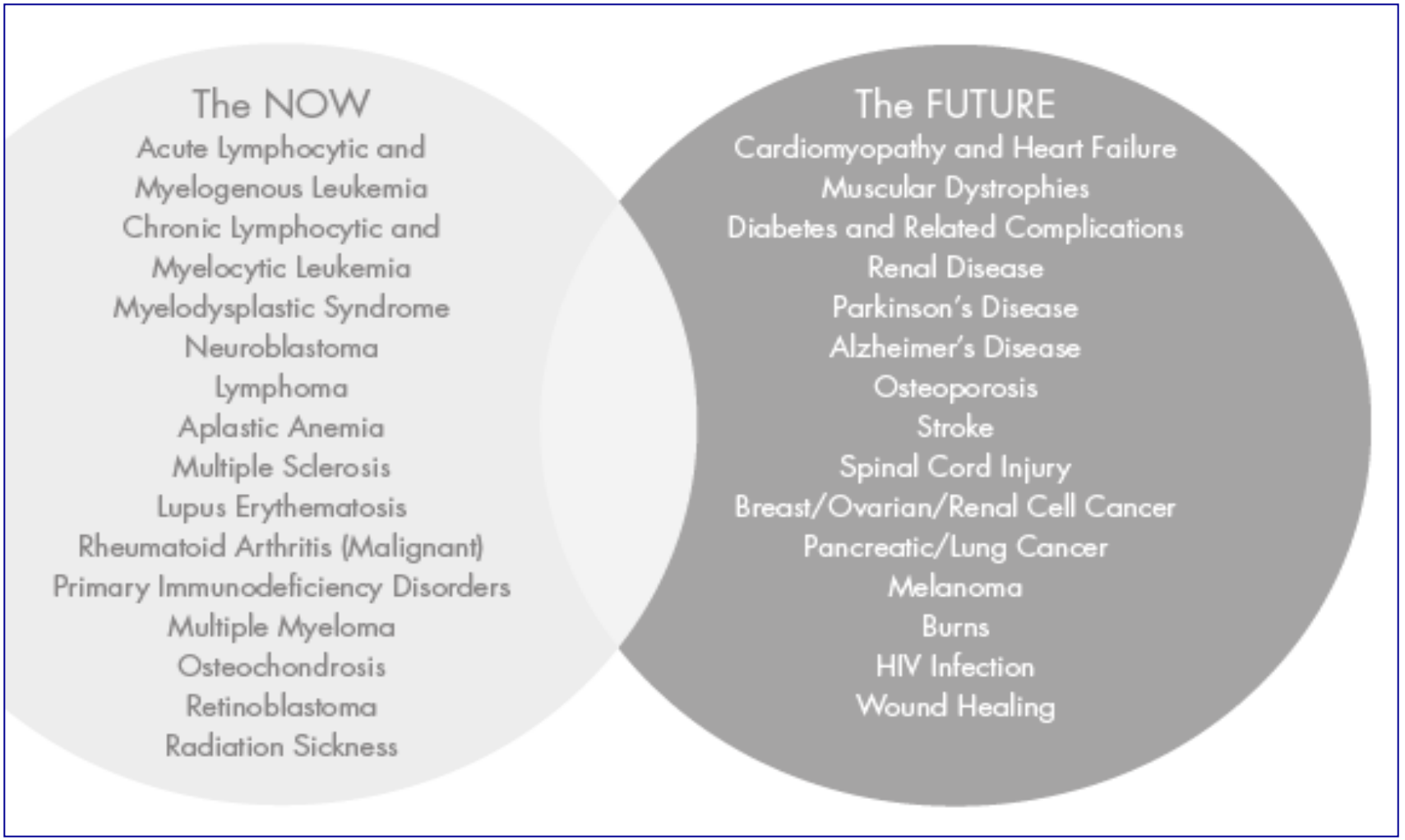
HANGİ HASTALIKLARDA YAPILIR?

- Lenf bezi, Kemik iliği, Kan kanserleri
  - Örnek; Lenfoma, Lösemi, Multiple Myeloma
- Kemik iliği yetmezlikleri
  - Örnek; Aplastik anemi, miyelodisplastik sendrom
- Bazı kan hastalıkları
  - Örnek: Talasemi, Orak Hücreli Anemi, Fankoni Anemisi
- Bazı solid kanserler
  - Örnek; Testis, over, Beyin, Kemik tümörleri
- Primer bağışıklık yetmezlik hastalıkları
- Genetik geçişli metabolik bozukluklar

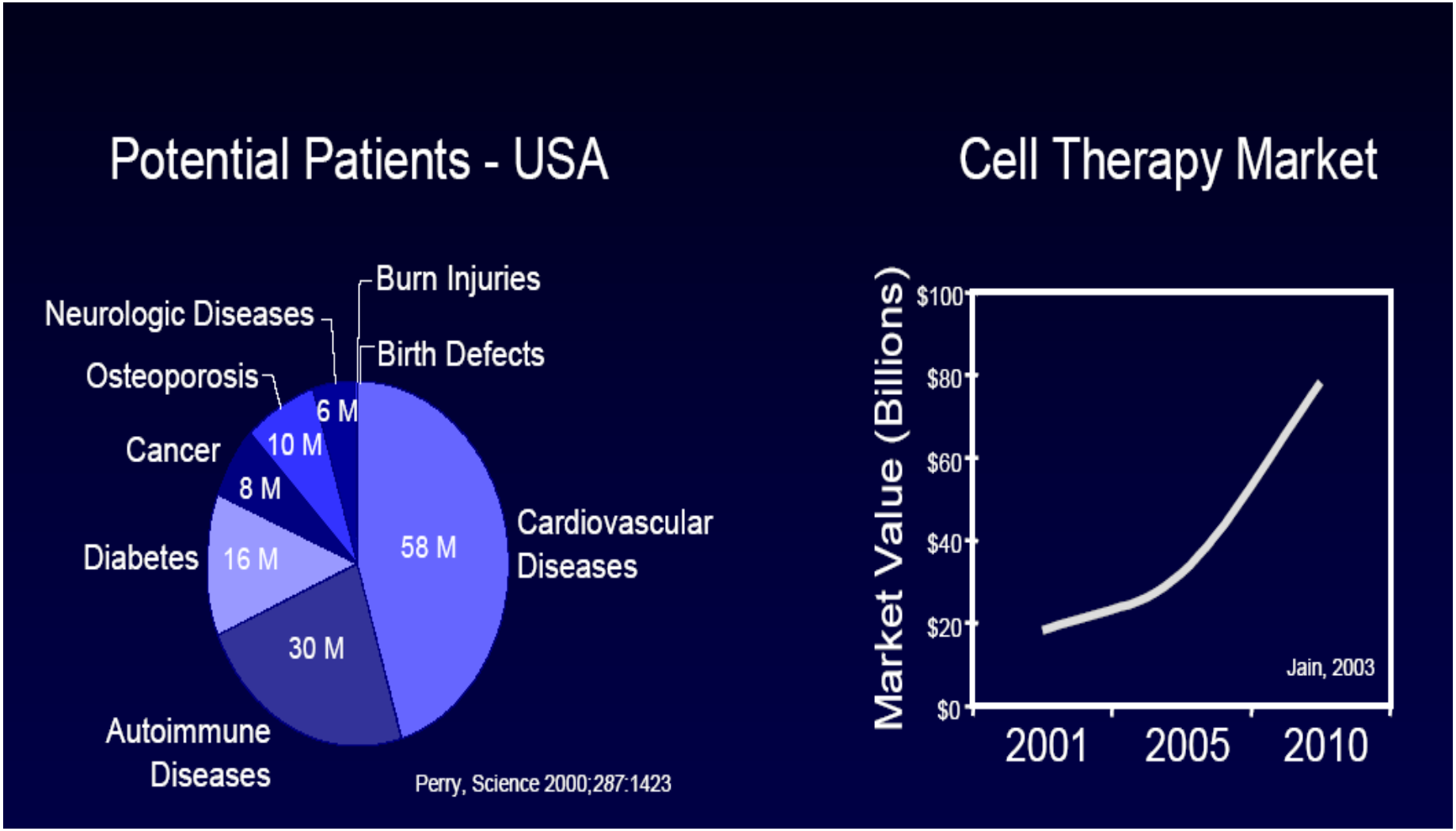


Hematopoetik Kök Hücre UYGULAMALARI

Quo Vadis?


The NOW
Acute Lymphocytic and Myelogenous Leukemia
Chronic Lymphocytic and Myelocytic Leukemia
Myelodysplastic Syndrome
Neuroblastoma
Lymphoma
Aplastic Anemia
Multiple Sclerosis
Lupus Erythematosis
Rheumatoid Arthritis (Malignant)
Primary Immunodeficiency Disorders
Multiple Myeloma
Osteochondrosis
Retinoblastoma
Radiation Sickness
The FUTURE
Cardiomyopathy and Heart Failure
Muscular Dystrophies
Diabetes and Related Complications
Renal Disease
Parkinson's Disease
Alzheimer's Disease
Osteoporosis
Stroke
Spinal Cord Injury
Breast/Ovarian/Renal Cell Cancer
Pancreatic/Lung Cancer
Melanoma
Burns
HIV Infection
Wound Healing

KÖK HÜCRE
Umut? Gelecek mi?



faltuntas@hotmail.com

www.drfevzialtuntas.com