# Where in the TED Does HCT Stuff Go?

Diane J. Knutson

CIBMTR® CENTER FOR INTERNATIONAL BLOOD & MARROW TRANSPLANT RESEARCH

TEDIT_1.ppt

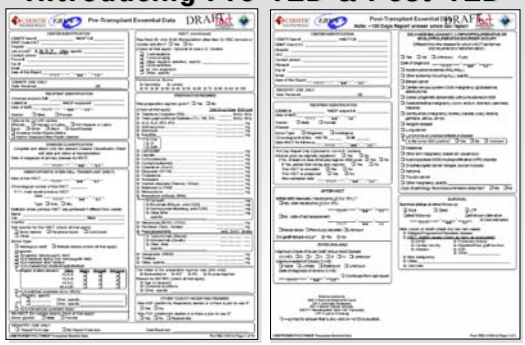
## Key Concepts

- What is an HSCT?
- Why perform one?
- Who can benefit?
- Mechanics of transplant
- Early and Late complications
- Where on “new” TED?

CIBMTR®

TEDIT_2.ppt

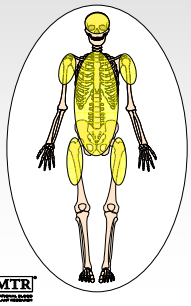
## Introducing Pre-TED & Post-TED



CIBMTR®

TEDIT_3.ppt

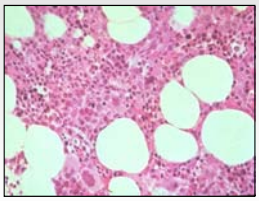
## Blood is Made in the Bone Marrow



- Axial skeleton
- Inner spongy bone
- Bone marrow is in the holes
- Bone marrow is a highly organized / regulated organ

CIBMTR

## Bone Marrow: The Source of Blood and Our Immune System

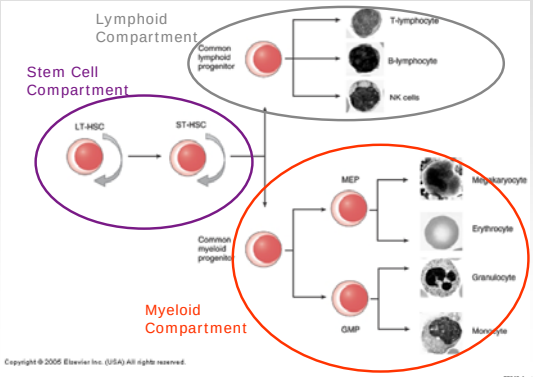


Normal bone marrow

- Blood stem cells
  - Pluripotent
  - Self renewing
- Highly regulated production
  - Cytokines (SCF, IL3)
  - Growth factors (G-CSF)

CIBMTR

## Hematopoiesis Scheme

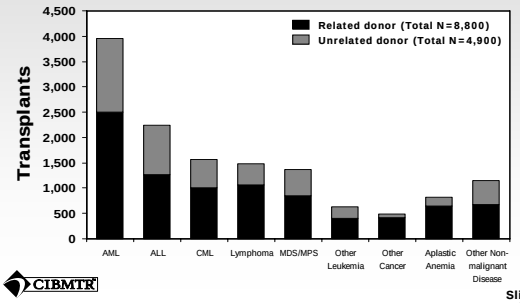


## Goals of HSCT

- Provide stem cell replacement
  - Autologous and allogeneic
- Destroy malignancy
  - Potentially lethal chemotherapy/radiation
  - Immunotherapy

CIBMTR

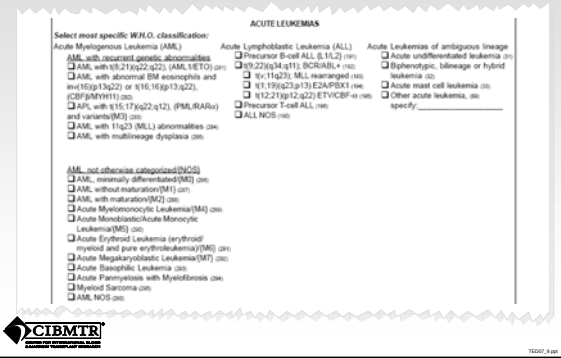
## Indications for Allogeneic Hematopoietic Stem Cell Transplants, 2003 – Worldwide




CIBMTR

Slide 7

## Pre-TED AML


ACUTE LEUKEMIAS

*Select most specific W.H.O. classification:*

Acute Myelogenous Leukemia (AML)

AML with recurrent genetic abnormalities
- ❑ AML with t(8;21)(q22;q22), (AML1/ETO)
- ❑ AML with abnormal BM eosinophils and inv(16)(p13q22) or t(16;16)(p13;q22), (CBFβ/MYH11)
- ❑ APL with t(15;17)(q22;q12), (PML/RARα) and variants(M3)
- ❑ AML with 11q23 (MLL) abnormalities
- ❑ AML with multilineage dysplasia

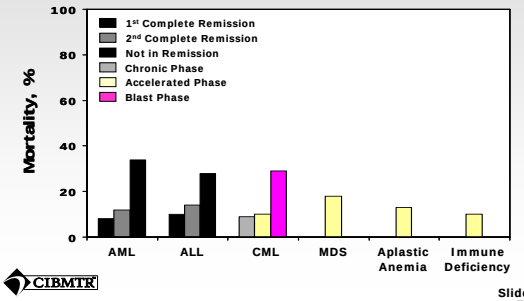
AML, not otherwise categorized(NOS)
- ❑ AML, minimally differentiated(M0)
- ❑ AML without maturation(M1)
- ❑ AML with maturation(M2)
- ❑ Acute Myelomonocytic Leukemia(M4)
- ❑ Acute Monoblastic/Acute Monocytic Leukemia(M5)
- ❑ Acute Erythroid Leukemia (erythroid/myeloid and pure erythroleukemia)(M6)
- ❑ Acute Megakaryoblastic Leukemia(M7)
- ❑ Acute Basophilic Leukemia
- ❑ Acute Panmyelosis with Myelofibrosis
- ❑ Myeloid Sarcoma
- ❑ AML NOS

Acute Lymphoblastic Leukemia (ALL)
- ❑ Precursor B-cell ALL (L1/L2)
- ❑ t(9;22)(q34;q11); BCR/ABL+
  - ❑ t(v;11q23); MLL rearranged
  - ❑ t(1;19)(q23;p13) E2A/PBX1
  - ❑ t(12;21)(p12;q22) ETV/CBF-α
- ❑ Precursor T-cell ALL
- ❑ ALL NOS

Acute Leukemias of ambiguous lineage
- ❑ Acute undifferentiated leukemia
- ❑ Biphenotypic, bilineage or hybrid leukemia
- ❑ Acute mast cell leukemia
- ❑ Other acute leukemia, specify:_____

CIBMTR

## 100-day Mortality after HLA-identical Sibling Myeloablative Transplants, 2002-2003



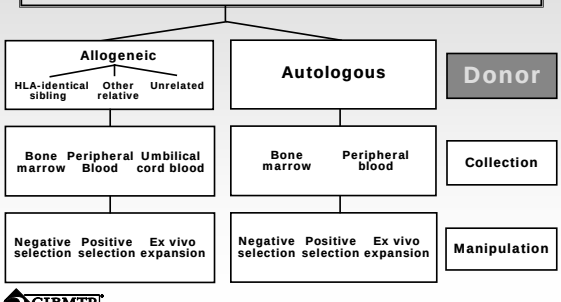

CIBMTR

Slide 12

## Acute Leukemia section


CIBMTR

## Hematopoietic Stem Cell Transplantation




CIBMTR

## Basics of HLA

- HLA = human leukocyte antigens
- Proteins on cell surfaces that are key players in immune response

CIBMTR

TED07_13.ppt

## HLA

- Class 1 = HLA- A, B, C
- Class 2 = HLA- DR, DP, DQ
- Differ in types of organisms they recognize and cells on which they are found

CIBMTR

TED07_14.ppt

## HLA Compatible Donor

- Varies among HSCT centers
- Varies among protocols
- Current acceptable donor
  - A, B – serologic match?
  - DRB1 – allele match

CIBMTR

TED07_15.ppt

## Antigen vs Allele

- Antigen = protein on surface of cells (serology)
- Allele = gene (DNA)

CIBMTR

TED07_16.ppt

## What is a "Match" ?

| | | |
|---|---|---|
| P: | A1, , DR1<br>B7, B8, DR3 | A*0101, A*0201, DRB1*0101<br>B*0702, B*0801, DRB1*0301 |
| | | |
| D: | A1, , DR1<br>B7, B8, DR3 | A*0101, A*0301, DRB1*0101<br>B*0702, B*0803, DRB1*0304 |
| | Serology  | DNA-Based  |

CIBMTR

TED07_17.ppt

## Pre-TED Donor Type

**Donor Type:**

❑ Autologous (self) ❑ Multiple donors (check all that apply)

Allogeneic:

❑ Syngeneic (monozygotic twin)

❑ HLA-identical sibling (not monozygotic twin)

❑ HLA-matched other relative

❑ HLA-mismatched relative/haploidentical

Degree of allele mismatch:

| Allele | Match | Mismatch | Not done |
|---|---|---|---|
| HLA-A | ❑ | ❑ | ❑ |
| HLA-B | ❑ | ❑ | ❑ |
| HLA-C | ❑ | ❑ | ❑ |
| HLA-DR | ❑ | ❑ | ❑ |

❑ HLA-matched unrelated donor (MUD)

Registry, specify:

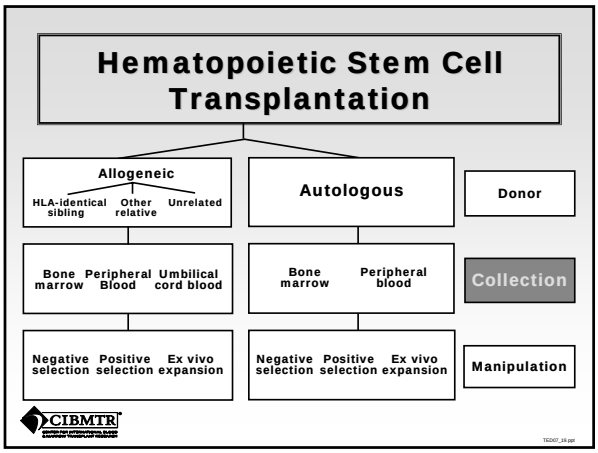
❑ _ _ _ _ _ Other, specify:_____

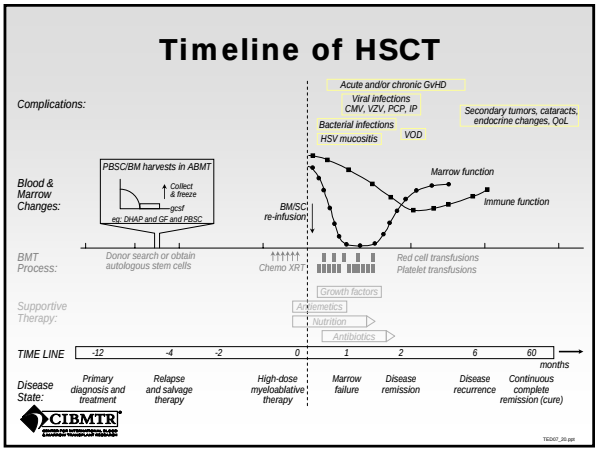
❑ _ _ _ _ _ Other, specify:_____

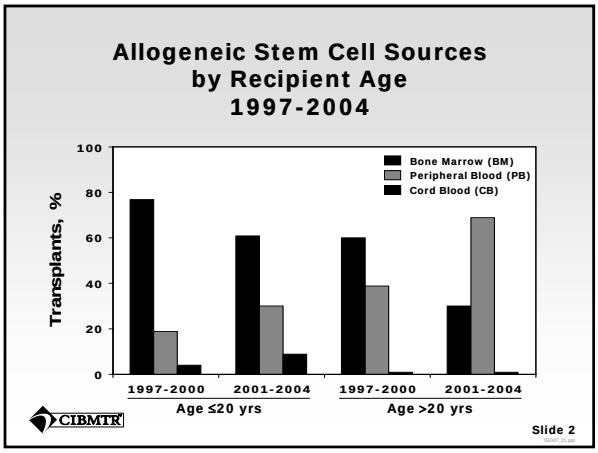
❑ HLA-mismatched unrelated donor

CIBMTR

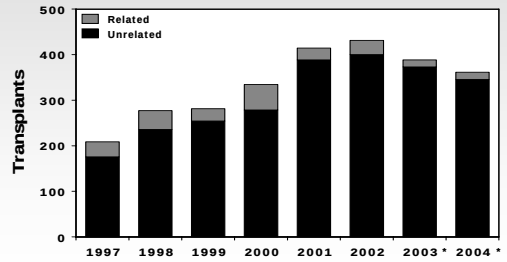
TED07_18.ppt


Hematopoietic Stem Cell Transplantation
Allogeneic
HLA-identical sibling
Other relative
Unrelated
Autologous
Donor
Bone marrow
Peripheral Blood
Umbilical cord blood
Bone marrow
Peripheral blood
Collection
Negative selection
Positive selection
Ex vivo expansion
Negative selection
Positive selection
Ex vivo expansion
Manipulation
CIBMTR


Timeline of HSCT
Complications:
Acute and/or chronic GvHD
Viral infections
CMV, VZV, PCP, IP
Secondary tumors, cataracts, endocrine changes, QoL
Bacterial infections
HSV mucositis
VOD
Blood & Marrow Changes:
PBSC/BM harvests in ABMT
Collect & freeze
gcsf
eg: DHAP and GF and PBSC
Marrow function
Immune function
BM/SC re-infusion
BMT Process:
Donor search or obtain autologous stem cells
Chemo XRT
Red cell transfusions
Platelet transfusions
Supportive Therapy:
Growth factors
Antiemetics
Nutrition
Antibiotics
TIME LINE
-12
-4
-2
0
1
2
6
60
months
Disease State:
Primary diagnosis and treatment
Relapse and salvage therapy
High-dose myeloablative therapy
Marrow failure
Disease remission
Disease recurrence
Continuous complete remission (cure)
CIBMTR


Allogeneic Stem Cell Sources by Recipient Age 1997-2004
Transplants, %
100
80
60
40
20
0
Bone Marrow (BM)
Peripheral Blood (PB)
Cord Blood (CB)
1997-2000
2001-2004
1997-2000
2001-2004
Age ≤20 yrs
Age >20 yrs
CIBMTR
Slide 2

## Cord Blood Transplants, Registered with the CIBMTR, 1997-2004




* Data incomplete

CIBMTR

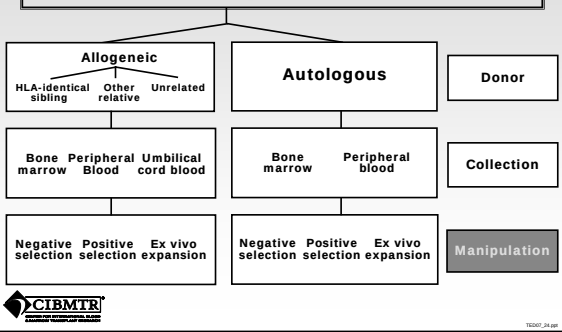
Slide 11

## Cell Source section

**Cell source** for this HSCT (check all that apply):
☐ Bone marrow ☐ Peripheral blood ☐ Cord blood
☐ Other: _____

CIBMTR

## Hematopoietic Stem Cell Transplantation




CIBMTR

## Pre-TED Graft Manipulation

Was there **Ex vivo Graft Manipulation** other than for RBC removal or volume reduction? ❑ Yes ❑ No
*(Check all that apply)* Optional for non-U.S. Centers

- ❑ T-cell depletion
- ❑ Tumor purging
- ❑ Other negative selection, specify: _____
- ❑ CD34 selection
- ❑ ex vivo expansion
- ❑ Other, specify: _____

CIBMTR

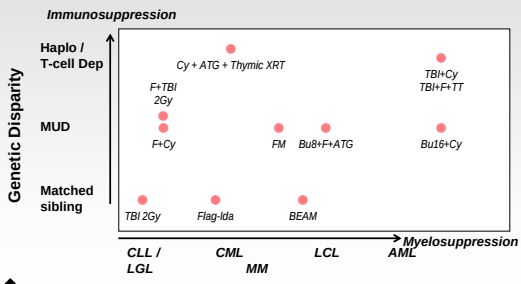
## Most Commonly Used Preparative Regimen Agents

| | HLA-ident sib BMT-malignancy | Unrelated Donor BMT-malignancy | Auto-HSCT Lymphoma |
|---|---|---|---|
| TBI | 52% | 85% | 25% |
| Cytoxan | 87% | 91% | 85% |
| Busulfan | 48% | 17% | 10% |
| Etoposide | 24% | 19% | 73% |
| Ara-C | 5% | 10% | 25% |
| Thiotepa | 4% | 14% | 8% |
| Platinum* | <1% | <1% | 7% |
| Nitrosourea** | 1% | <1% | 53% |

CIBMTR

* cis-Platinum / carboplatin ** BCNU / CCNU

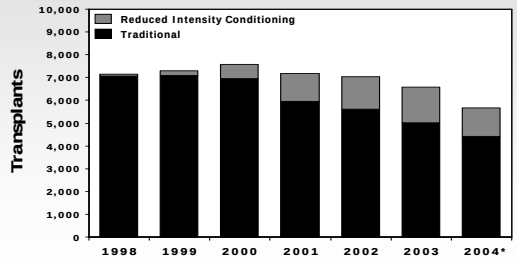
## A Continuum of Non-myeloablative / Reduced Intensity Prep Regimens




CIBMTR

Aggressiveness Of Malignancy

## Allogeneic Transplants, Registered with the CIBMTR, 1998-2004

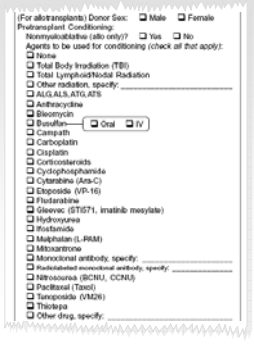



CIBMTR

* Data incomplete

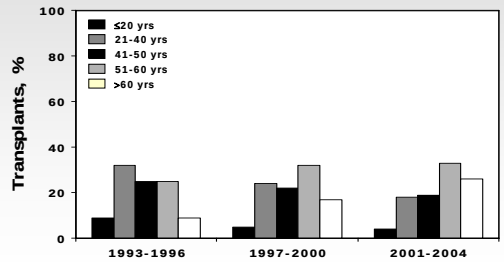
Slide 16

## Pre-TED Preparative Regimen


(For allotransplants) Donor Sex: ❑ Male ❑ Female
Pretransplant Conditioning:
Nonmyeloablative (allo only)? ❑ Yes ❑ No
Agents to be used for conditioning (check all that apply):
❑ None
❑ Total Body Irradiation (TBI)
❑ Total Lymphoid/Nodal Radiation
❑ Other radiation, specify: _____
❑ ALG,ALS,ATG,ATS
❑ Anthracycline
❑ Bleomycin
❑ Busulfan ❑ Oral ❑ IV
❑ Campath
❑ Carboplatin
❑ Cisplatin
❑ Corticosteroids
❑ Cyclophosphamide
❑ Cytarabine (Ara-C)
❑ Etoposide (VP-16)
❑ Fludarabine
❑ Gleevec (STI571, imatinib mesylate)
❑ Hydroxyurea
❑ Ifosfamide
❑ Melphalan (L-PAM)
❑ Mitoxantrone
❑ Monoclonal antibody, specify: _____
❑ Radiolabeled monoclonal antibody, specify: _____
❑ Nitrosourea (BCNU, CCNU)
❑ Paclitaxel (Taxol)
❑ Tenoposide (VM26)
❑ Thiotepa
❑ Other drug, specify: _____

CIBMTR

## Trends in Autologous Transplants Recipient Age* 1993-2004




CIBMTR

* Transplants for AML, ALL, NHL, Hodgkin disease, Multiple Myeloma

Slide 5

## Pre-TED Co-morbid Conditions

**COMORBID CONDITIONS**

Anti-CMV (IgG or Total) reactive non-reactive inconclusive not done (Multiple donors: report any positive CMV test as reactive)
Recipient: ❑ ❑ ❑ ❑
Donor: ❑ ❑ ❑ ❑

Were there clinically significant co-existing disease or organ impairment at time of patient assessment prior to preparative regimen?
❑ Yes ❑ No
*(Check all that apply:)*

| Yes | No | NotDone | Comorbidity | Definitions |
|---|---|---|---|---|
| ❑ | ❑ | ❑ | Arrhythmia | Atrial fibrillation or flutter, sick sinus syndrome, or ventricular arrhythmias |
| ❑ | ❑ | ❑ | Cardiac | Coronary artery disease §, congestive heart failure, myocardial infaction, or EF ≤ 50% |
| ❑ | ❑ | ❑ | Cerebrovascular disease | Transient ischemic attack or cerebrovascular accident |
| ❑ | ❑ | ❑ | Diabetes | Requiring treatment with insulin or oral hypoglycemics but not diet alone |
| ❑ | ❑ | ❑ | Heart valve disease | Except mitral valve prolapse |
| ❑ | ❑ | ❑ | Hepatic, mild | Chronic hepatitis, bilirubin > ULN to 1.5 × ULN, or AST/ALT > ULN to 2.5 × ULN |
| ❑ | ❑ | ❑ | Hepatic, moderate/severe | Liver cirhosis, bilirubin > 1.5 × ULN, or AST/ALT > 2.5 × ULN |
| ❑ | ❑ | ❑ | Infection | Requiring continuation of antimicrobial treatment after day 0 |
| ❑ | ❑ | ❑ | Inflammatory bowel disease | Crohn disease or ulcerative colitis |
| ❑ | ❑ | ❑ | Obesity | Patients with a body mass index > 35 kg/m² |
| ❑ | ❑ | ❑ | Peptic ulcer | Requiring treatment |
| ❑ | ❑ | ❑ | Psychiatric disturbance | Depression or anxiety requiring psychiatric consult or treatment |
| ❑ | ❑ | ❑ | Pulmonary, moderate | DLco and/or FEV, 66-80% or dyspnea on slight activity |
| ❑ | ❑ | ❑ | Pulmonary, severe | DLco and/or FEV, ≤ 65% or dyspnea at rest or requiring oxygen |
| ❑ | ❑ | ❑ | Renal, moderate/severe | Serum creatinine > 2 mg/dL or >177 µmol/L, on dialysis, or prior renal transplantation |
| ❑ | ❑ | ❑ | Rheumatologic | SLE, RA, polymyositis, mixed CTD, or polymyalgia rheumatica |
| ❑ | ❑ | ❑ | Solid tumor, prior | Treated at any time point in the patient's past history, excluding nonmelanoma skin cancer |
| ❑ | ❑ | ❑ | Other | Specify:_____ |

CIBMTR

TED07_31.ppt

## Pre-TED Therapy Planned as of Day 0

**POST-HSCT DISEASE THERAPY PLANNED AS OF DAY 0**

Is this HSCT part of a **planned multiple** (sequential) graft/HSCT program? ❑ Yes ❑ No

Is additional **post-HSCT therapy planned**?
❑ Yes ❑ No

*(Check all that apply)* Optional for non-U.S. centers
- ❑ Anti CD 20 (Rituxan; Mabthera)
- ❑ Bortezomib (Velcade)
- ❑ Cellular therapy (e.g. DLI)
- ❑ Intrathecal Chemotherapy
- ❑ Imatinib mesylate (Gleevec, Glivec)
- ❑ Lenalidomide (Revlimid)
- ❑ Local radiotherapy
- ❑ Thalidomide
- ❑ Other, specify:_____

CIBMTR

TED07_32.ppt

## Post-TED

CIBMTR

TED07_33.ppt

## Enhance / Monitor Recovery

- Administer growth factors
  - G-CSF, GM-CSF
- Monitor hematopoietic recovery
  - Cell number and type (granulocytes, platelets, etc.)
  - Marrow cellularity
  - Chimerism (X/Y, VNTR, HLA)

CIBMTR

TED07_34.ppt

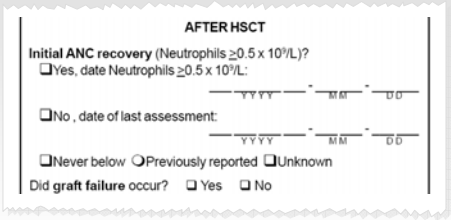
## ANC recovery (not engraftment)

- Report first of three consecutive days of ANC greater than 500
- Usually not before 8-10 days for myeloablative HSCT
- May never become neutropenic for reduced-intensity

CIBMTR

TED07_35.ppt

## Post-TED ANC Recovery



AFTER HSCT

**Initial ANC recovery** (Neutrophils ≥0.5 x $10^9$/L)?

❑Yes, date Neutrophils ≥0.5 x $10^9$/L:

___ YYYY ___ - __ MM __ - __ DD

❑No , date of last assessment:

___ YYYY ___ - __ MM __ - __ DD

❑Never below ❍Previously reported ❑Unknown

Did **graft failure** occur? ❑ Yes ❑ No

CIBMTR

TED07_36.ppt

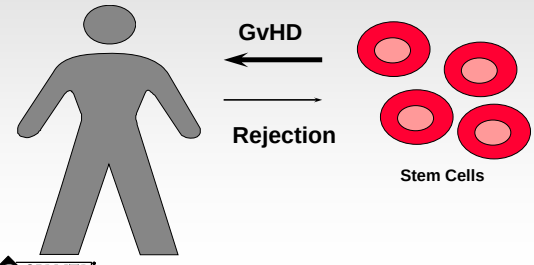
## Complications

- Graft rejection
- Graft vs host disease
- Relapse of disease
- Infection
- Regimen-related toxicity

CIBMTR

## Graft vs Host Disease/Graft Rejection

HLA differences stimulate detrimental immune responses




CIBMTR

## Factors Influencing Risk Of GVHD

**Donor/Graft-related**
- HLA-disparity
- Female → Male
- Parity
- Older age
- T-cell dose
- AGVHD (for CGVHD)

**Recipient-related**
- Older age
- Prior viral infection/exposure
- Other microbial infection

**Treatment-related**
- Conditioning regimen
- Inadequate immune suppression

CIBMTR

## Acute GVHD Glucksberg Staging (organs) Criteria

| Stage | Skin | Liver (Bilirubin) | Intestinal tract* (Diarrhea) |
|---|---|---|---|
| Stage 0 | No rash | <2.0 mg/dL or <35 mmol/L | None or <500 ml/day or <280 ml/m²/day |
| Stage 1 | Maculopapular rash, <25% of body surface | 2.0-3.0 mg/dL or 35-52 mmol/L | >500 but <1000 ml/day or 280-555 ml/m²/day |
| Stage 2 | Maculopapular rash, 25-50% of body surface | 3.1-6.0 mg/dL or 53-103 mmol/L | >1000 but <1500 ml/day or 556-833 ml/m²/day |
| Stage 3 | Generalized erythroderma | 6.1-15.0 mg/dL or 104-236 mmol/L | >1500 ml/day or >833 ml/m²/day |
| Stage 4 | Generalized erythroderma with bullae formation and desquamation | >15.0 mg/dL or >356 mmol/L | Severe abdominal pain, with or without ileus |

*use ml/day for adult patients and ml/m²/day for pediatric patients

CIBMTR

TED07_40.ppt

## Overall Grade

| | |
|---|---|
| Grade I | Stage 1 to 2 skin rash; no gut involvement; no liver involvement; no decrease in clinical performance |
| Grade II | Stage 1 to 3 skin rash; Stage 1 gut involvement or liver involvement (or both); mild decrease in clinical performance |
| Grade III | Stage 2 to 3 rash; Stage 2 to 3 gut involvement or Stage 2 to 4 liver involvement (or both); marked decrease in clinical performance |
| Grade IV | Similar to Grade II with Stage 2 to 4 organ involvement and extreme decrease in clinical performance |

Thomas ED - *N Engl J Med* - 1975 Apr 24; 292(17):895-902

CIBMTR

TED07_41.ppt

## Chronic GVHD

- Poorly understood late manifestation
  - Both alloimmune and autoimmune features
  - In part a failure of thymus function
- Incidence
  - ~1/3 of matched sibs
  - 60-70% of matched unrelate
  - Higher with mismatched
- Risk factors
  - HLA disparity, patient age, prior aGvHD, graft source

CIBMTR

TED07_42.ppt

## Chronic GVHD Classification (old but it's what we've got)

- Limited
  - Either or both
    - Localized skin involvement
    - Hepatic dysfunction due to cGvHD

CIBMTR

TED07_63.ppt

## Chronic GVHD Classification continued

- Extensive
  - Generalized skin involvement, or
  - Localized skin involvement and/or hepatic dysfunction due to chronic GvHD
  - OR
    - Liver histology showing chronic aggressive hepatitis, bridging necrosis, or cirrhosis, or
    - Eye involvement (Schirmer test <5mm wet), or
    - Involvement of minor salivary glands/oral mucosa
    - Involvement of any other organ

CIBMTR

TED07_64.ppt

## Manifestations Of Chronic GVHD (I)

| Organ System | Definite manifestations of Chronic GVHD | Possible manifestations of Chronic GVHD |
|---|---|---|
| Skin | Scleroderma (superficial or fasciitis), lichen planus, vitiligo, scarring alopecia, hyperkeratosis pilaris, contractures from skin immobility, nail bed dysplasia | Eczematoid rash, dry skin, maculopapular rash, hyperpigmentation, hair loss |
| Mucous membranes | Lichen planus, non-infectious ulcers, corneal erosions/non-fectious conjunctivities | Xerostomia, keratoconjunctivitis sicca |
| GI tract | Esophageal strictures, steatorrhea | Anorexia, malabsorption, weight loss, diarrhea, abdominal pain |
| Liver | None | Elevation of alkaline phosphatase, transaminitis, cholangitis, hyperbilirubineamia |

CIBMTR

TED07_65.ppt

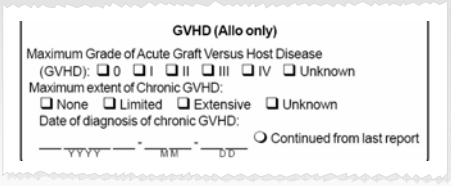
## Manifestations Of Chronic GVHD (II)

| Organ System | Definite manifestations of Chronic GVHD | Possible manifestations of Chronic GVHD |
|---|---|---|
| Liver | None | Elevation of alkaline phosphatase, transaminitis, cholangitis, hyperbilirubineamia |
| GU | Vaginal stricture, lichen planus | Non-infectious vaginitis, vaginal atrophy |
| Musculoskeleta l / Serosa | Non-septic arthritix, myositis, myasthenia, polyserositis, contractures from joint immobilization | Arthralgia |
| Hematologic | None | Thrombocytopenia, esinophilia, autoimmune cytopenias |
| Lung | Bronchiolitis obliterans | Bronchiolitis obliterans with organizing pneumonia, interstitial pneumonitis |

CIBMTR

TED07_46.ppt

## Post-TED GVHD


GVHD (Allo only)

Maximum Grade of Acute Graft Versus Host Disease (GVHD): ❑ 0 ❑ I ❑ II ❑ III ❑ IV ❑ Unknown

Maximum extent of Chronic GVHD: ❑ None ❑ Limited ❑ Extensive ❑ Unknown

Date of diagnosis of chronic GVHD: ___ YYYY ___ - ___ MM ___ - ___ DD ___ ❍ Continued from last report

CIBMTR

TED07_47.ppt

## Evaluating Post-HSCT Disease Status

- Most frequent cause of treatment failure
- Vigilance may affect rapidity of diagnosis
- Method of detection really does matter

CIBMTR

TED07_48.ppt

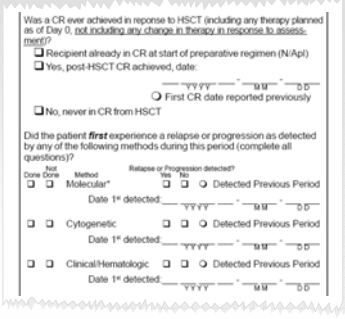
## Method of Detection of Disease

- Molecular (most sensitive)
  - Blood or marrow
  - Bcr/abl, bcl-2
- Cytogenetic (mod. sensitive)
  - Blood or marrow
  - t(9:22), t(14:18)
- Hematologic (least sensitive)
  - Blood or marrow appearance

CIBMTR

TED07_49.ppt

## Post-TED Disease Assessment



Was a CR ever achieved in reponse to HSCT (including any therapy planned as of Day 0, not including any change in therapy in response to assessment)?

☐ Recipient already in CR at start of preparative regimen (N/Apl)

☐ Yes, post-HSCT CR achieved, date: ___ - YYYY - ___ - MM - ___ - DD

○ First CR date reported previously

☐ No, never in CR from HSCT

Did the patient ***first*** experience a relapse or progression as detected by any of the following methods during this period (complete all questions)?

| Done | Not Done | Method | Relapse or Progression detected? Yes | No | |
|---|---|---|---|---|---|
| ☐ | ☐ | Molecular* | ☐ | ☐ | ○ Detected Previous Period |
| | | Date 1st detected: ___ - YYYY - ___ - MM - ___ - DD | | | |
| ☐ | ☐ | Cytogenetic | ☐ | ☐ | ○ Detected Previous Period |
| | | Date 1st detected: ___ - YYYY - ___ - MM - ___ - DD | | | |
| ☐ | ☐ | Clinical/Hematologic | ☐ | ☐ | ○ Detected Previous Period |
| | | Date 1st detected: ___ - YYYY - ___ - MM - ___ - DD | | | |

CIBMTR

TED07_50.ppt

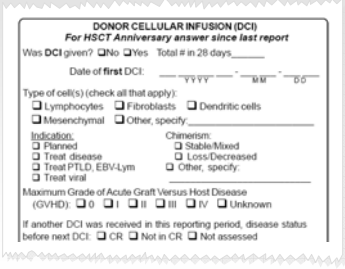
## Indications for DCI

- Relapse prophylaxis ("planned")
- Treatment of relapse: CML, AML
- Treatment of PTLD, EBV-Lym
- Treatment of GVHD
- Treatment of Viral Infections
- Chimerism
  - Stable or declining donor cells
- Other emerging indications

CIBMTR

TED07_51.ppt

## Post-TED DCI



DONOR CELLULAR INFUSION (DCI)
*For HSCT Anniversary answer since last report*

Was **DCI** given? ❑No ❑Yes Total # in 28 days_____

Date of **first** DCI: ____-____-____ (YYYY-MM-DD)

Type of cell(s) (check all that apply):
❑ Lymphocytes ❑ Fibroblasts ❑ Dendritic cells
❑ Mesenchymal ❑ Other, specify:_____

Indication:
❑ Planned
❑ Treat disease
❑ Treat PTLD, EBV-Lym
❑ Treat viral

Chimerism:
❑ Stable/Mixed
❑ Loss/Decreased
❑ Other, specify:_____

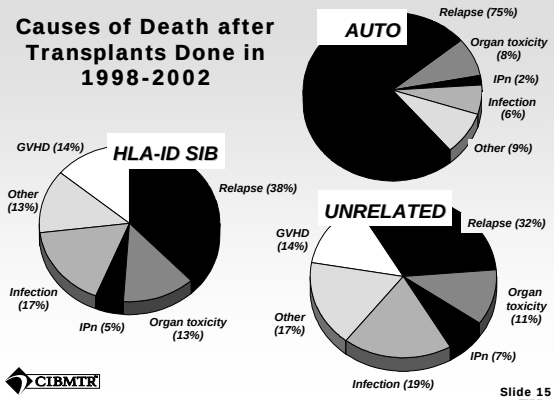
Maximum Grade of Acute Graft Versus Host Disease (GVHD): ❑ 0 ❑ I ❑ II ❑ III ❑ IV ❑ Unknown

If another DCI was received in this reporting period, disease status before next DCI: ❑ CR ❑ Not in CR ❑ Not assessed

CIBMTR

TED07_52.ppt

## Causes of Death after Transplants Done in 1998-2002

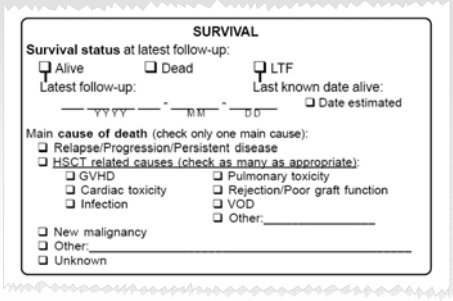



CIBMTR

Slide 15

TED07_53.ppt

## Post-TED Survival



SURVIVAL

**Survival status** at latest follow-up:
❑ Alive ❑ Dead ❑ LTF

Latest follow-up: ____-____-____ (YYYY-MM-DD) ❑ Date estimated

Last known date alive:

Main **cause of death** (check only one main cause):
❑ Relapse/Progression/Persistent disease
❑ HSCT related causes (check as many as appropriate):
- ❑ GVHD
- ❑ Cardiac toxicity
- ❑ Infection
- ❑ Pulmonary toxicity
- ❑ Rejection/Poor graft function
- ❑ VOD
- ❑ Other:_____

❑ New malignancy
❑ Other:_____
❑ Unknown

CIBMTR

TED07_54.ppt

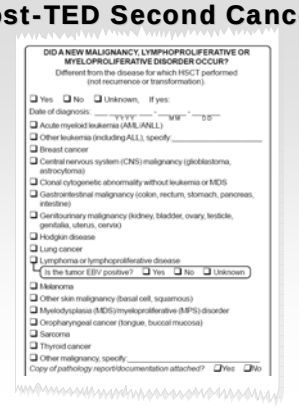
## Late Complications of BMT

- Regimen-related toxicity
  - Cataracts
  - Neurologic
  - Gonadal
  - Endocrine
  - Growth & development
- Infection
- Chronic GVHD
- Relapse of malignancy/New-2nd cancers

CIBMTR

TED07_55.ppt

## Post-TED Second Cancer



DID A NEW MALIGNANCY, LYMPHOPROLIFERATIVE OR MYELOPROLIFERATIVE DISORDER OCCUR?

Different from the disease for which HSCT performed (not recurrence or transformation).

❑ Yes ❑ No ❑ Unknown, If yes:

Date of diagnosis: ____-____-____ YYYY MM DD

❑ Acute myeloid leukemia (AML/ANLL)
❑ Other leukemia (including ALL), specify:_____
❑ Breast cancer
❑ Central nervous system (CNS) malignancy (glioblastoma, astrocytoma)
❑ Clonal cytogenetic abnormality without leukemia or MDS
❑ Gastrointestinal malignancy (colon, rectum, stomach, pancreas, intestine)
❑ Genitourinary malignancy (kidney, bladder, ovary, testicle, genitalia, uterus, cervix)
❑ Hodgkin disease
❑ Lung cancer
❑ Lymphoma or lymphoproliferative disease
Is the tumor EBV positive? ❑ Yes ❑ No ❑ Unknown
❑ Melanoma
❑ Other skin malignancy (basal cell, squamous)
❑ Myelodysplasia (MDS)/myeloproliferative (MPS) disorder
❑ Oropharyngeal cancer (tongue, buccal mucosa)
❑ Sarcoma
❑ Thyroid cancer
❑ Other malignancy, specify:_____
Copy of pathology report/documentation attached? ❑Yes ❑No

CIBMTR

TED07_54.ppt

## Factors Affecting HSCT Success

- Diagnosis and stage of disease
- Time from diagnosis to HSCT
- Quality of HLA match
- Ages of recipient/donor
- Prior CMV exposure
- Disease treatment
- HSCT protocol

CIBMTR

TED07_57.ppt

## Observational Database

- Information on persons treated under ordinary circumstances, with treatments selected by the recipients, by clinical judgements of physicians, or by nature rather than by experimental design.