



## 2012 COUNCIL MEETING

# C3: Genetic Ancestry for a Better Match

Saturday, November 10, 2012

11:15 - 12:30 p.m.

## Presented by

Martin Maiers, BS

Jill Hollenbach, PhD, MPH

Abeer Madbouly, PhD

## Objectives

At the conclusion of this session, the attendee will be able to:

1. Describe the importance of genetic ancestry information to HCT.
2. Explain the issues associated with self-identified race and ethnicity and how that might affect HCT.
3. Identify how improvements to race and ethnic classification of donor and recipients can improve registry operations.

## Conflict of Interest/Financial Disclosure

The Speaker(s) voluntarily disclosed the following pertinent financial relationships and/or conflicts of interest:

- *None – The speaker(s) in this session have disclosed NO conflicts*

---

Attendee Signature

---

Date

## **Effects of race on survival after stem cell transplantation.**

Mielcarek M, Gooley T, Martin PJ, Chauncey TR, Young BA, Storb R, Torok-Storb B.

---

Effects of race or ethnicity on survival after high-dose chemoradiation followed by stem cell transplantation (SCT) have not been thoroughly evaluated. We analyzed survival according to racial/ethnic categories for 3587 consecutive patients who had SCT at a single US institution between July 1992 and December 2000. Among 1366 patients who received autologous SCT, race or ethnicity was not significantly associated with survival. In contrast, among 2221 patients who received allogeneic SCT from HLA-matched unrelated or sibling donors, blacks had a significantly greater mortality than whites (unadjusted hazard ratio, 1.65; 95% confidence interval, 1.21-2.25). Mortality among other racial or ethnic groups was not significantly different from that among whites. The greater mortality hazard among blacks persisted after controlling for donor type, pretransplantation risk category, patient age, donor/patient sex, and cytomegalovirus exposure (hazard ratio, 1.71; 95% confidence interval, 1.25-2.34). SCT from both HLA-matched unrelated and HLA-identical sibling donors was associated with more severe acute graft-versus-host disease and higher nonrelapse mortality among blacks compared with whites. Furthermore, blacks who received SCT for chronic myeloid leukemia had longer diagnosis-to-transplantation intervals than whites. A matched-cohort analysis showed that the higher mortality among blacks could not be explained by obvious socioeconomic differences. The higher incidence of severe graft-versus-host disease among blacks compared with whites, both with HLA-identical sibling donors, might be related to yet-unidentified "immune-enhancing" genetic polymorphisms. We cannot exclude the possibility that the increased mortality risk among blacks after discharge from the transplant center might in part be related to unidentified sociocultural differences that influence medical care.

---

Biol Blood Marrow Transplant. 2005 Mar;11(3):231-9.

## **Relationship of race/ethnicity and survival after single umbilical cord blood transplantation for adults and children with leukemia and myelodysplastic syndromes.**

Ballen KK, Klein JP, Pedersen TL, Bhatta D, Duerst R, Kurtzberg J, Lazarus HM, LeMaistre CF, McCarthy P, Mehta P, Palmer J, Setterholm M, Wingard JR, Joffe S, Parsons SK, Switzer GE, Lee SJ, Rizzo JD, Majhail NS.

---

The relationship of race/ethnicity with outcomes of umbilical cord blood transplantation (UCBT) is not well known. We analyzed the association between race/ethnicity and outcomes of unrelated single UCBT for leukemia and myelodysplastic syndromes. Our retrospective cohort study consisted of 885 adults and children (612 whites, 145 blacks, and 128 Hispanics) who received unrelated single UCBT for leukemia and myelodysplastic syndromes between 1995 and 2006 and were reported to the Center for International Blood and Marrow Transplant Research. A 5-6/6 HLA-matched unit with a total nucleated cell count infused of  $\geq 2.5 \times 10^7/\text{kg}$  was given to 40% white and 42% Hispanic, but only 21% black patients. Overall survival at 2 years was 44% for whites, 34% for blacks, and 46% for Hispanics ( $P = .008$ ). In multivariate analysis adjusting for patient, disease, and treatment factors (including HLA match and cell dose), blacks had inferior overall survival (relative risk of death, 1.31;  $P = .02$ ), whereas overall survival of Hispanics was similar (relative risk, 1.03;  $P = .81$ ) to that of whites. For all patients, younger age, early-stage disease, use of units with higher cell dose, and performance status  $\geq 80$  were independent predictors of improved survival. Black patients and white patients infused with well-matched cords had comparable survival; similarly, black and white patients receiving units with adequate cell dose had similar survival. These results suggest that blacks have inferior survival to whites after single UCBT, but outcomes are improved when units with a higher cell dose are used.

---

Biol Blood Marrow Transplant. 2012 Jun;18(6):903-12. Epub 2011 Nov 4.

**Geographic Origin and Ancestry**

- Were you born in the United States?  No  Yes
- Were your parents born in the United States?  No  Yes, one  Yes, both
- How many of your grandparents were born in the United States?  None  1  2  3  4

*From what countries or parts of the world did your ancestors come?*

Select as many categories from the lists below as needed to fully describe the origins of your family. If all of your grandparents were born in the United States, answer based on where your ancestors came from before they arrived in America.

For example, if your family is Dutch and Indonesian, mark the boxes next to “The Netherlands” and “Southeast Asia.” If your family is English, Polish and Ukrainian, mark “England,” “Poland,” and “Eastern Europe.”

Common countries of origin:

- |  |   |
|--|---|
| <input type="checkbox"/> Canada (01)             | <input type="checkbox"/> Japan (13)           |
| <input type="checkbox"/> China (02)              | <input type="checkbox"/> Korea (14)           |
| <input type="checkbox"/> Cuba (03)               | <input type="checkbox"/> Mexico (15)          |
| <input type="checkbox"/> Dominican Republic (04) | <input type="checkbox"/> The Netherlands (16) |
| <input type="checkbox"/> El Salvador (05)        | <input type="checkbox"/> Norway (17)          |
| <input type="checkbox"/> England (06)            | <input type="checkbox"/> Philippines (18)     |
| <input type="checkbox"/> France (07)             | <input type="checkbox"/> Poland (19)          |
| <input type="checkbox"/> Germany (08)            | <input type="checkbox"/> Puerto Rico (20)     |
| <input type="checkbox"/> Guatemala (09)          | <input type="checkbox"/> Russia (21)          |
| <input type="checkbox"/> India (10)              | <input type="checkbox"/> Scotland (22)        |
| <input type="checkbox"/> Ireland (11)            | <input type="checkbox"/> Sweden (23)          |
| <input type="checkbox"/> Italy (12)              | <input type="checkbox"/> Vietnam (24)         |

Regions of the world:

- Northern Europe (25)
- Western Europe (26)
- Southern Europe (27)
- Eastern Europe (28)
- Middle East (29)
- South Asia (30)
- East Asia (31)
- Southeast Asia (32)
- Pacific Islands (33)
- Caribbean (34)
- Central or South America (35)
- Northern Africa (36)
- Sub-Saharan Africa (37)

Other common ancestries:

- African American (38)
- North American Indian (39)

*If possible, in the boxes below, enter the best origin code for each of your grandparents. The origin code is the two-digit number listed in brackets following the options above.*

Maternal grandmother  
(mother’s mother)

Paternal grandmother  
(father’s mother)

Maternal grandfather  
(mother’s father)

Paternal grandfather  
(father’s father)

## Race and Ethnicity

### *Self-identification*

Mark one or more boxes to show the racial or ethnic group(s) you use to describe yourself.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or other Pacific Islander
- White
- Other

### *How do other people in this country typically classify you?*

Mark one box to show the racial or ethnic group most Americans would use to describe you.

- American Indian or Alaska Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- Other

### **Making the best matches**

When looking for a suitable donor for a patient, we look for matches in the Human Leukocyte Antigen (HLA) genes. These genes, part of your DNA, are more similar in groups of people with the same geographic origins, marriage patterns and histories of migration.

Your answers to this questionnaire will help Be The Match<sup>®</sup> find the best matched donors for patients.

[space for sticker with Study ID number]