



The 65th ASH Annual Meeting Abstracts

ORAL ABSTRACTS

903.HEALTH SERVICES AND QUALITY IMPROVEMENT -MYELOID MALIGNANCIES

Impact of Publicly Reported Center Specific Analysis on Patient Selection Practices for Hematopoietic Stem Cell Transplantation

Christopher Strouse, MD¹, Mark Juckett, MD², Brent R. Logan, PhD^{3,4}, Noel Estrada-Merly, MS⁵, Jaime M. Preussler, MS⁶, Tony Truong, MD⁷, Jesse Troy, PhD MPH⁸, Nandita Khera, MD⁹, William Wood, MD MPH¹⁰, Hemalatha G. Rangarajan, MD¹¹, Luke Akard, MD¹², Neel S. Bhatt, MBBS,MPH^{13,14}, Akshay Sharma, MBBS¹⁵, Wael Saber, MDMS⁵

¹ Division of Hematology, Oncology and Blood & Marrow Transplantation, Holden Comprehensive Cancer Center, University of Iowa Hospitals and Clinics, Iowa City, IA

² Division of Hematology, Oncology, and Transplantation, Department of Medicine, University of Minnesota, Minneapolis, MN

³ CIBMTR® (Center for International Blood and Marrow Transplant Research), Medical College of Wisconsin, Milwaukee

⁴ Division of Biostatistics, Institute for Health and Equity, Medical College of Wisconsin, Milwaukee, WI

⁵ CIBMTR® (Center for International Blood and Marrow Transplant Research), Department of Medicine, Medical College of Wisconsin, Milwaukee, WI

⁶ CIBMTR® (Center for International Blood and Marrow Transplant Research), National Marrow Donor Program/Be The Match, Minneapolis, MN

⁷ Alberta Children's Hospital, Calgary, Canada

⁸ Carolinas Cord Blood Bank, Duke University Medical Center; Pediatric Blood and Marrow Transplant, Cryo-Cell International Cord Blood Bank, Duke University Medical Center, Durham, NC

⁹ Mayo Clinic, Phoenix, AZ

¹⁰ Division of Hematology, Department of Medicine, University of North Carolina At Chapel Hill Hospital, Chapel Hill, NC

¹¹ Department of Pediatric Hematology, Oncology, Blood and Marrow Transplantation, Nationwide Childrens Hospital, Columbus, OH

¹² Indiana Blood & Marrow Transplantation (IBMT), Indianapolis, IN

¹³ Department of Pediatrics, Division of Hematology/Oncology, University of Washington School of Medicine, Seattle, WA

¹⁴ Clinical Research Division, Fred Hutchinson Cancer Center, Seattle, WA

¹⁵ St. Jude Children's Research Hospital, Memphis, TN

Introduction

Public reporting of outcomes drives healthcare improvement in many fields, including hematopoietic cell transplantation (HCT), although with possible unintended consequences. The Center for International Blood & Marrow Transplant Research (CIBMTR) publishes an annual Center-Specific Survival Analysis (CSA), which compares HCT centers' observed 1-year overall survival (OS) with their statistically modeled expected 1-year OS, with 95% confidence intervals (CI). Centers with OS within their 95% CI receive a 0 score, indicating as expected outcomes. Those with OS below / above their 95% CI receive a -1 / +1 score, indicating below / above expected OS, respectively. After a -1 report, centers may change their patient selection criteria, causing unintentional systematic exclusion of patient populations who could benefit from HCT. We analyzed how the CSA report influences patient selection practices among centers receiving a -1 score.

Methods

Centers receiving a -1 report between 2012 and 2016 that had 'as expected' survival in the preceding 2 years were classified as newly below expected OS centers (NBCs). The year of their -1 report was used as the index year. Centers with 'as expected' OS in the 3 years before and after each index year were identified as control centers, reflecting expected evolution of patient selection in the HCT field. The patient population variables analyzed are shown in Table 1. The difference in patient population characteristics in the 3 years before vs the 3 years after the index years defined the change in patient selection behavior at the NBCs and the controls. A multivariate model adjusting for baseline patient population characteristics and center size was used to compare the change in patient population from before and after the index year in the NBCs and that of the controls.

The difference in differences ($\Delta\text{in}\Delta$) were calculated as $\Delta\text{NBC} - \Delta\text{Control}$. A significance threshold of $p < 0.01$ was used to account for multiple testing.

Results

After adjusting for overall trends, center size, and baseline patient population characteristics, no differences in patient selection behavior meeting the pre-specified threshold for statistical significance were identified when comparing the NBCs ($n=24$ centers) with the controls ($n=195$ centers). In the 3 years following the index years, 4,150 and 25,013 patients were transplanted at NBCs and controls, respectively. The proportion of patients receiving reduced intensity or non-myeloablative conditioning regimens decreased 4.1% in NBCs and increased 5.0% in controls, for a net difference of -9.1% (95% CI: -16.7% to -1.6%, $p=0.02$). All other patient characteristic proportions changed in the same direction at NBCs and controls, albeit to varying degrees (Table 1). In some high-risk characteristics, (e.g. HCT-CI > 3), a greater increase was seen at NBCs vs controls ($\Delta\text{in}\Delta$ 2.1% 95% CI: -2.8% to 6.9%, $p=0.40$). In others, (e.g. age 60+ years), a greater increase was seen at controls vs NBCs ($\Delta\text{in}\Delta$ -2.6% 95% CI: -5.9% to 0.7%, $p=0.12$). To capture a holistic measure of centers' patient population risk, the predicted 1-year survival was compared in the NBCs vs controls using the logistic regression model generated for each year's CSA. The predicted OS increased by 3.08% and 3.30% in the NBCs and controls respectively, with no statistically significant difference (-0.23%, 95% CI: -1.4% to 0.9%, $p=0.70$, Figure 1). The observed overall survival (adjusted for predicted 1 year OS) also increased in both NBCs and controls by 0.9% and 4.5% respectively, without statistically significant difference (-3.6%, 95% CI: -6.7% to -0.7%, $p=0.02$).

Discussion

For centers receiving a -1 report, no statistically significant changes were seen in patient population characteristics in the following 3 years when compared to centers with OS as expected. There was variability in the changes in high-risk patient characteristics at the NBCs relative to the controls, and in some cases more patients with high-risk characteristics were selected at these centers compared to those at controls. The change in predicted overall survival at 1 year, a summary indicator of survival risk, was similar between NBCs and control centers. Although the number of patients in centers with below expected OS was small, these findings suggest the public reporting of outcomes in HCT in the US does not unintentionally affect access to HCT for high-risk patients at NBCs.

Disclosures Logan: *Enlivex*: Consultancy. **Khera:** *Incyte*: Honoraria. **Wood:** *Genetech*: Research Funding; *Pfizer*: Research Funding; *Teladoc*: Consultancy; *Koneksa Health*: Consultancy; *Quantum Health*: Consultancy. **Sharma:** *Medexus Inc*: Consultancy; *Vertex Pharmaceuticals*: Consultancy, Other: Clinical Trial Site PI; *Sangamo Therapeutics*: Consultancy; *Editas Medicine*: Consultancy; *CRISPR Therapeutics*: Other: Clinical Trial Site PI, Research Funding; *RCI BMT/NMDP*: Honoraria, Other: Clinical Trial Medical Monitor.

Table 1: Difference in Change from Baseline Patient Population Characteristics

		Pre y0 proportion estimate [95% CI]	Change (Post-Pre) [95% CI]	Difference in Change (Δ NBC- Δ Control) [95% CI]	P value
Observed OS at 1 year	NBCs	62.31% (60.73 - 63.90)	0.87% (-1.56 - 3.31)	-3.64% (-6.69 - -0.72)	0.02
	Controls	67.49% (66.56 - 68.43)	4.52% (2.94 - 6.09)		
Predicted OS at 1 year	NBCs	65.87% (64.42 - 67.31)	3.08% (2.08 - 4.08)	-0.23% (-1.38 - 0.93)	0.70
	Controls	67.00% (65.98 - 68.02)	3.30% (2.73 - 3.88)		
Non-white	NBCs	20.16% (15.14 - 25.19)	0.51% (-1.73 - 2.75)	-1.61% (-4.14 - 0.91)	0.21
	Controls	22.97% (19.28 - 26.66)	2.12% (0.96 - 3.28)		
HCT-CI >3	NBCs	50.99% (45.78 - 56.20)	8.03% (4.04 - 12.02)	+2.07% (-2.78 - 6.92)	0.40
	Controls	46.43% (42.68 - 50.19)	5.96% (3.22 - 8.70)		
60+ years	NBCs	33.12% (30.50 - 35.97)	5.83% (3.09 - 8.58)	-2.60% (-5.94 - 0.74)	0.12
	Controls	32.53% (30.64 - 34.42)	8.43% (6.45 - 10.42)		
Advanced Disease	NBCs	42.65% (39.95 - 45.35)	13.25% (9.94-16.57)	+4.12% (0.11 - 8.12)	0.04
	Controls	40.76% (38.99 - 42.53)	9.14% (6.87 - 11.40)		
PB Graft	NBCs	77.15% (72.15 - 82.15)	-4.97% (-9.90 - -0.05)	-3.11% (-9.19 - 2.97)	0.31
	Controls	84.80% (81.24 - 88.35)	-1.87% (-5.29 - 1.56)		
Non-MSD/MUD	NBCs	22.38% (19.02 - 25.74)	2.78% (0.80 - 6.35)	+1.12% (-3.25 - 5.50)	0.61
	Controls	23.87% (21.51 - 26.24)	1.65% (0.89 - 4.19)		
non-MAC	NBCs	38.15% (32.01 - 44.28)	-4.11% (-10.30 - 2.07)	-9.12% (-16.69 - -1.55)	0.02
	Controls	46.24% (41.80 - 50.69)	5.01% (0.77 - 9.24)		
KPS \geq 90	NBCs	66.03% (58.64 - 73.41)	-7.17 (-11.81 - -2.53)	-2.44% (-7.84 - 2.97)	0.37
	Controls	60.85% (55.59 - 66.11)	-4.74 (-7.36 - -2.12)		

HCT-CI: Hematopoietic Cell Transplantation-specific Comorbidity Index, KPS: Karnofsky Performance Score, MAC: Myeloablative Conditioning, MSD: Matched Sibling Donor, MUD: Matched Unrelated Donor, NBC: Newly Below Expected OS Center, OS: Overall Survival, PB: Peripheral Blood

Figure 1: Change in Predicted Overall Survival

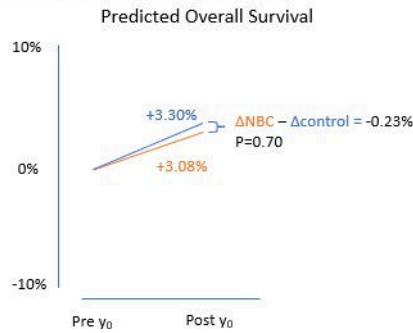


Figure 1

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