



The 65th ASH Annual Meeting Abstracts

POSTER ABSTRACTS

902.HEALTH SERVICES AND QUALITY IMPROVEMENT - LYMPHOID MALIGNANCIES

Frailty Syndrome in Adults Undergoing Autologous Hematopoietic Cell Transplantation. Prospective Study on Behalf of the Grupo Español De Trasplante Hematopoyético y Terapia Celular

Maria Queralt Salas¹, Maria Teresa Solano¹, Mónica Baile González², Marina Acera Gómez², Maria Laura Fox, MD³, Maria del Mar Pérez Artigas³, Ana Santamaria⁴, María del Carmen Quintela González⁴, Andres Sanchez Salinas⁵, Joaquina Salmeron Camacho⁵, Veronica Illana Álvaro⁶, Zahra Abdollahi Lefdil⁶, Javier Cornago⁷, Laura Pardo⁷, Sara Fernandez-Luis⁸, Leddy Patricia Vega Suárez⁸, Sara Villar⁹, Patricia Beorlegui Murillo¹⁰, Albert Esquirol¹¹, Isabel Izquierdo¹², Sonia González Rodríguez¹³, Alberto Mussetti, MD¹³, Aitor Abuin Blanco¹⁴, Javier López Marin¹⁵, Silvia Filaferro¹⁶, Leyre Bento¹⁷, Anna Maria Sureda Balari, MD PhD¹⁸

¹Hematopoietic Cell Transplantation Unit, Hospital Clínic de Barcelona, ICHMO, Barcelona, Spain

²Servicio de Hematología y Hemoterapia del Complejo Asistencial Universitario de Salamanca -IBSAL, Salamanca, Spain

³Vall d'Hebron University Hospital, Barcelona, Spain

⁴Hospital Álvaro Cunqueiro, Vigo, Spain

⁵Hospital Universitario Virgen de la Arrixaca., Murcia, Spain

⁶Hospital Universitario de la Princesa, Madrid, Spain

⁷Hospital Universitario Fundación Jiménez Díaz, Madrid, Spain

⁸Hospital Universitario Marqués de Valdecilla (IDIVAL), Santander, Spain

⁹Hematology and Cell Therapy Department, Clinica Universidad de Navarra, IdiSNA, Pamplona, Spain

¹⁰Hematology and Cell Therapy Department, Clinica Universidad de Navarra, Navarra, Spain

¹¹Hematology Departmen, Hospital de Sant Pau, Barcelona, Spain

¹²Hospital Universitario Miguel Servet, Zaragoza, Spain

¹³Institut Catala d'Oncologia-Hospitalet, Clinical Hematology Department, Barcelona, Spain

¹⁴Servicio de Hematología. Hospital Universitario Lucus Augusti, Lugo, Spain

¹⁵Hospital General de Alicante, Alicante, Spain

¹⁶Grupo Español de Trasplante de Progenitores Hematopoyéticos y Terapia Celular (GETH-TC) Data Office, Madrid, Spain

¹⁷Hematology Department, Hospital Universitario Son Espases, IdISBa, Palma De Mallorca, Spain

¹⁸Clinical Hematology Department, Institut Català d'Oncologia-Hospitalet, IDIBELL, Barcelona, Spain

INTRODUCTION

During the past two years, sixteen institutions members of the Grupo Español de Trasplante Hematopoyético y Terapia Celular (GETH-TC) have undertaken a multicenter and prospective study with the purpose of evaluating the frailty of adults' candidates to autologous HCT (auto-HCT) and of investigating the effect of frailty in transplant outcomes.

METHODS

All patients consulted for auto-HCT were eligible to be included in the study after providing informed consent. Frailty was evaluated at first consultation, at admission, and after the stem cell infusion, using the HCT Frailty Scale (Salas et al. BMT 2023), designed classify candidates for allogeneic HCT into fit, pre-frail and frail categories (**Table 1**). The frailty assessment was made by the hematologists and nurses team as part of the clinical practice and utilizing existing resources. The median time to complete the evaluation ranged from 8 to 10 minutes. As an extension, this study includes the evaluation of patient's quality of life (QoL) using the EQ-5D-EL questionnaire. QoL was measured at HCT admission and day +100 after the stem cell infusion.

This study has no external funding. The results obtained from the frailty assessment were not used to determine HCT eligibility and/or to design the HCT process.

RESULTS

This study includes 380 consecutive adult candidates for auto-HCT who have been evaluated for frailty in the sixteen participating institutions between February 2021 and May 2023.

Overall, the median age was 58 (range, 18-76) and 219 (57.6%) were males. Multiple myeloma or other plasma cell disorders (PCD) (n=213, 62.1%) and lymphoproliferative disorders (SLP) (n=121, 31.8%) were the most prevalent baseline diagnosis. Prior to auto-HCT, 104 (33.8%) out of 307 adults had an KPS<90% and 35 (12.4%) out of 282 an HCT-CI>3. All patients included underwent their auto-HCT during the study period, and in only 20 (5.3%) of the cases, the standard doses of the conditioning regimen were required to be adjusted secondary to the patient's condition, age or comorbidities.

The first consultation was mostly performed before the stem cell collection. At first consultation, 108 (28.4%) adults were classified as fit, 203 (53.4%) as pre-frail, and 69 (18.2%) as frail. Frail patients were more likely to be older than 60 (OR 5.3, $p<0.001$), to have a KPS<90% (HR 5.80, $p<0.01$), and an abnormal Mini-Cog test (<3) (OR 5.81, $p=0.0271$). The probability of being frail was not affected by sex (HR 1.7, $p=0.173$), comorbidities (HCT-CI>3) ($p=0.196$), or underlying diagnosis (multivariate binary regression analysis).

Frailty at first consultation was not associated with a more prolonged HCT hospitalization ($p=0.663$) or higher readmissions ($p=0.579$). However, a non-significant trend to lower OS was observed in frail patients undergoing auto-HCT than in the rest [1-year OS of fit, pre-frail, and frail adults: 98.5%, 95.6%, and 84.4% ($p=0.072$)] (Table 1). The impact of frailty in QoL was also investigated. As shown in Table 2, compared with fit patients, pre-frail and frail adults had worse score values throughout all the variables included questionnaire.

Since PCD and SLP are the most prevalent indications for auto-HCT, trends on frailty were investigated separately on these subgroups of patients. Trends on frailty were examined and reported in Table 1. At first consultation, the proportions of fit, pre-frail, and frail adults were similar between the two groups ($p=0.896$). At HCT admission, the proportion of frail patients with PCD tend to be higher than in the other group (16.6% vs.9.9%, $p=0.051$). Nevertheless, at day +100, frailty stages were again similar between the two study groups. Lastly, when the impact of frailty in OS was investigated in these two subgroups of patients, the negative effect of this syndrome in post-transplant outcomes was only observed in patients with PCD ($p=0.012$).

CONCLUSIONS

This study validates the applicability of the HCT Frailty Scale in adult candidates for auto-HCT. At first consultation, frailty had an incidence of 18% being more prevalent in older adults and with worse performance status. Moreover, its presence during the post-transplant process was associated with worse QoL.

Preliminary data shows that frailty at first consultation correlates with lower OS in patients with PCD. Further analyses will be conducted to better investigate this result.

Disclosures Fox: Sierra Oncology: Consultancy; BMS: Honoraria; Abbvie: Consultancy, Other: Support for attending meetings and/or travel; GSK: Consultancy; Novartis: Consultancy, Honoraria. **Sureda Balari:** MSD: Consultancy, Honoraria; BMS/Celgene: Consultancy, Honoraria, Research Funding; Janssen: Consultancy, Honoraria; Pierre Fabre: Consultancy, Honoraria; Takeda: Consultancy, Honoraria, Research Funding, Speakers Bureau; Novartis: Consultancy, Honoraria; Astra Zeneca: Consultancy, Honoraria; Sanofi: Consultancy, Honoraria; Kite: Consultancy, Honoraria; GenMab: Consultancy, Honoraria.

TABLE 1. HCT Frailty Scale			
Variables included	Abnormal result	If normal result	If abnormal result
Clinical Frailty Scale	≥ 3	+0	+1.5
IADL Test	≥1 Limitation	+0	+1
TUGT	>10 seconds	+0	+1.5
Grip Strength	<16 kg female/<26 kg male	+0	+1
Self-Rated Health Question	Fair, Poor	+0	+1
Fall in Last 6 Months	Yes	+0	+1
Albumin Serum Level	<38 g/L	+0	+1.5
C-Reactive Protein: Abnormal	≥11 mg/L	+0	+2
Median of time: 8-10 minutes Performed by Medical Doctors and Specialized Nurses		HCT Frailty Score: Sum of the scores obtained from the assessment of each variable included in the scale	
Patient Frailty Status Classification:		Fit (score = 0-1) Pre-Frail (score = 1.5-5.0) Frail (score = 5.5-10.5)	
Frailty in patients undergoing auto-HCT			
All patients included in the study:	First Consultation N=380	HCT Admission N=380	Day +100 N=239
HCT FRAILTY SCALE			
Fit (score = 0-1)	108 (28.4)	101 (26.6)	78 (32.6)
Pre-Frail (score = 1.5-5.0)	203 (53.4)	232 (61.0)	138 (57.7)
Frail (score = 5.5-10.5)	69 (18.2)	47 (12.4)	23 (9.6)
Missing / Not measured yet	0	0	141
MiniCog<3	41 (11.1)	36 (9.5)	10 (2.6)
Impact of frailty in OS			
HCT Frailty Scale at first consultation			
	% (95% CI)		
Fit	98.5 (89.7-99.8)		
Pre-Frail	95.6 (98.7-98.2)		
Frail	84.4 (56.6-95.0)		
P value*	0.078		
Impact and Dynamics of Frailty in Patients with Plasma Cell Disorders			
All patients included in the study:	First Consultation N=213	HCT Admission N=213	Day +100 N=137
HCT FRAILTY SCALE			
Fit (score = 0-1)	54 (25.4)	47 (22.0)	40 (29.2)
Pre-Frail (score = 1.5-5.0)	109 (51.2)	132 (62.0)	81 (59.1)
Frail (score = 5.5-10.5)	50 (23.5)	34 (16.0)	16 (11.7)
Missing / Not measured yet			76
MiniCog<3	22 (10.3)	22 (10.3)	5 (2.3)
Impact of frailty in OS			
HCT Frailty Scale at first consultation			
	% (95% CI)		
Fit	100%		
Pre-Frail	97.1 (88.6-99.3)		
Frail	71.6 (27.0-91.8)		
P value*	0.012		
Impact and Dynamics of Frailty in Patients with Lymphoproliferative Disorders			
All patients included in the study:	First Consultation N=121	HCT Admission N=121	Day +100 N=71
HCT FRAILTY SCALE			
Fit (score = 0-1)	37 (30.6)	39 (32.2)	22 (31.0)
Pre-Frail (score = 1.5-5.0)	70 (57.9)	70 (57.9)	43 (60.6)
Frail (score = 5.5-10.5)	14 (11.6)	12 (9.9)	6 (8.5)
Missing / Not measured yet			
MiniCog<3	16 (13.2)	3 (2.5)	2 (1.7)
Impact of frailty in OS			
HCT Frailty Scale at first consultation			
	% (95% CI)		
Fit	100%		
Pre-Frail	92.0 (76.0-97.2)		
Frail	100%		
P value*	0.225		

Figure 1

<https://doi.org/10.1182/blood-2023-185679>

All patients QoL Test	HCT Admission			→	Day +100		
	Fit (n=24)	Pre-Frail (n=70)	Frail (n=)		Fit (n=53)	Pre-Frail (n=48)	Frail (n=6)
Mobility							
1	24 (100)	49 (70.0)	0		23 (88.5)	29 (60.4)	4 (66.7)
2	0	20 (28.6)	2 (20.0)		3 (11.5)	19 (39.6)	1 (16.7)
3	0	1 (1.49)	8 (80.0)		0	0	1 (16.7)
Self Care							
1	24 (100)	59 (84.3)	0		25 (96.2)	45 (98.8)	4 (66.7)
2	0	10 (14.3)	7 (70.0)		1 (3.8)	3 (6.3)	1 (16.7)
3	0	1 (1.4)	3 (30.0)		0	0	1 (16.7)
Daily Activities							
1	23 (95.8)	39 (55.7)	2 (20.0)		22 (84.6)	27 (56.3)	1 (16.1)
2	1 (4.2)	28 (40.0)	6 (60.0)		4 (15.4)	20 (41.7)	4 (66.7)
3	0	3 (4.3)	2 (20.0)		0	1 (2.1)	1 (16.7)
Pain / Discomfort							
1	19 (79.1)	35 (50.0)	2 (20.0)		0	22 (46.8)	0
2	5 (20.9)	33 (47.1)	6 (60.0)		13 (50.0)	24 (51.1)	4 (66.7)
3	0	2 (2.9)	2 (20.0)		13 (50.0)	1 (2.1)	2 (33.3)
Anxiety / Depression							
1	20 (83.3)	42 (60.7)	0		17 (65.4)	29 (50.0)	0
2	4 (16.7)	35 (35.7)	8 (80.0)		9 (34.6)	22 (45.8)	4 (66.7)
3	0	3 (4.5)	2 (20.0)		0	2 (4.2)	2 (33.3)
Current Health Status Perception (%) (range)	80% (70-90%)	64% (50-75%)	40% (30-80%)		80% (60.100%)	60% (30-90%)	35% (25-66%)