

of this quantitative PCR is 0.01%. For one patient without JAKV617F mutation molecular remission was determined by 100% donor chimerism with quantitative PCR using genetic polymorphisms.

No treatment-related mortality after DLI was observed. Acute GVHD grade II through IV was seen in 3 patients (18%), which occurred only in the salvage DLI cohort. In this cohort, complete remission was seen in 4 patients (44%), which was complete on molecular level in 3 of them. In 2 of them complete remission was associated with acute GVHD (grade III). All other patients with clinical relapse ( $n = 5$ ) developed no GVHD, but best response was only clinical improvement or stable disease. In contrast to salvage DLI, all patients who received preemptive DLI responded with complete molecular remission (100%), and none of these patients developed any signs of grade II through IV acute GVHD. Only in one patient was mild chronic GVHD of the liver noted. The median time to achieve complete remission was 79 days (range, 31-495 days). The overall rate of complete molecular remission rate was 68%, which was higher in the preemptive group than in the salvage group (100% vs 44%;  $P = .04$ ).

This report provided evidence for a strong donor T cell-mediated graft-versus-myelofibrosis effect. Adoptive immunotherapy for molecular residual disease monitored with highly sensitive PCR for JAK2-V617F mutation seems to be more effective and less toxic than using donor lymphocyte infusion for clinical relapse and should be implemented in further clinical trials.

**Nicolaus Kröger, Haefaa Alchalby, Evgeny Kiyuchnikov, Anita Badbaran, York Hildebrandt, Francis Ayuk, Ulrike Bacher, Oliver Bock, Michael Kvasnicka, Boris Fehse, and Axel Zander**

*Contribution: N.K. conceived the idea and study proposal and wrote the manuscript; H.A. and A.B. performed quantitative JAK2V617F PCR; E.K. and F.A. provided study material and analyzed data; N.K., U.B., B.F., and A.Z. analyzed and interpreted JAK2V617F PCR results; O.B. and M.K. performed bone marrow histology examination; Y.H. provided JAK2 analysis; and all authors reviewed and approved the manuscript.*

*Conflict-of-interest disclosure: The authors declare no competing financial interests.*

*Correspondence: Prof Dr Nicolaus Kröger, Department for Stem Cell Transplantation, University Hospital Hamburg-Eppendorf, Martinistrasse 52, D-20246 Hamburg, Germany; e-mail: nkroeger@uke.uni-hamburg.de.*

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## To the editor:

### Older age does not influence allogeneic peripheral blood stem cell mobilization in a donor population of mostly white ethnic origin

Several factors that affect peripheral blood stem cell (PBSC) mobilization were recently identified in a large cohort of healthy donors; factors included ethnic origin, weight, and the total dose of rhG-CSF received for mobilization.<sup>1</sup> However, the median age of this population was 40 years, which does not necessarily reflect current practices in allogeneic stem cell transplantation since the decrease of transplant-related mortality associated with the use of reduced-intensity conditioning (RIC) regimens has led to offering this therapeutic modality to older patients, and in turn soliciting older related donors. The question whether age has a negative impact on mobilization remains controversial.<sup>1-5</sup>

We retrospectively evaluated 129 consecutive related adult donors who underwent PBSC mobilization and collection at the Institut Paoli-Calmettes (Marseille, France) between January 2005 and December 2007. Median age was 51 years (range, 19-70 years) among 44 donors aged 55 years or older. All donors received 4 to 5 days of G-CSF (filgrastim; Amgen, Thousand Oaks, CA) given once daily in the evening, with the

first leukapheresis initiated on the morning of day 5. Although the recommended dose for rhG-CSF is 10  $\mu\text{g}/\text{kg}$  per day for stem cell mobilization, most donors received a total dose of rhG-CSF that was rounded to the lowest multiple of 300  $\mu\text{g}$ , thus allowing the daily use of a whole number of vials: as a consequence, the median received dose per kilogram of body weight of rhG-CSF was 8.9  $\mu\text{g}$ , which may contribute to the lower number of circulating CD34<sup>+</sup> cells observed in our cohort of patients (59.5/ $\mu\text{L}$ ), compared with the recently published cohort of North American donors (84/ $\mu\text{L}$ ).<sup>1</sup>

To identify factors affecting circulating CD34<sup>+</sup> cell counts as a surrogate maker for stem cell mobilization, we first performed a univariate analysis, including age, sex, weight, height, total G-CSF dose, and G-CSF dose per kilogram of body weight. Ethnicity was not tested as an explanatory factor for stem-cell mobilization, because our cohort of donors was smaller and more homogeneous, mostly with individuals of white descent. Variables associated with higher post-G-CSF CD34<sup>+</sup> cell counts were donor weight ( $P < .003$ ) and the total dose of G-CSF

**Table 1. Donor characteristics according to age**

Characteristic	All donors (n = 129)	Older donor group (age ≥ 55, n = 44)	Younger donor group (age < 55, n = 85)
Median age of donor, y (range)	49 (19-75)	60 (55-75)	46 (19-53)
Male, %	55	56.8	54.1
Median weight, kg (range)	73 (45-130)	72.5 (54-98)	73 (45-130)
Median height, cm (range)	171 (150-193)	168 (154-186)	172 (150-193)
Median G-CSF, μg/kg (range)	8.7 (6.3-13.6)	8.6 (6.3-11.1)	8.7 (6.3-13.6)
Median age of recipient, y (range)	51 (19-70)	59.5 (41-70)	45 (19-65)
Circulating CD34 <sup>+</sup> cell counts, median (range)	50.6 (8.7-275.9)	55.5 (8.7-122.7)	49.9 (8.8-275.9)
Collected CD34 <sup>+</sup> cells, ×10 <sup>6</sup> , median (range)	247.5 (49-910)	224.4 (49.7-665.7)	266.4 (49-910)

received ( $P < .001$ ), thus reproducing recently published results.<sup>1</sup> By multivariate analysis, only the total dose of G-CSF received remained significant ( $P < .001$ ).

Interestingly, our group of recent donors was more heterogeneous in terms of age, and therefore might more accurately reflect current practices in allogeneic transplantation from related donors. It is important to stress that age did not significantly influence CD34<sup>+</sup> cell counts ( $P = .344$ ). When looking at subgroups according to age, no significant difference was found between the mobilization procedure and endpoints for older donors (age ≥ 55, n = 44, of whom 10 were older than 70 years) compared with younger donors (age < 55, n = 85; Table 1).

Our results contrast with the modest negative effect reported in the previously mentioned study. The absence of deleterious effect of older age on progenitor cell mobilization is important to consider in view of the increasing use of older donors, in the context of RIC allo-SCT.

**Hugues de Lavallade, Patrick Ladaique, Claude Lemarié, Sabine Fürst, Catherine Faucher, Didier Blaise, Christian Chabannon, and Boris Calmels**

*Conflict-of-interest disclosure: The authors declare no competing financial interests.*

*Correspondence: Boris Calmels, PharmD, PhD, Centre de Thérapie Cellulaire et Génique CiC-B510 et Inserm U891, Institut Paoli-Calmettes, 232, bd Ste Marguerite, 13273 Marseille cedex 9, France; e-mail: calmelsb@marseille.fnclcc.fr or therccell@marseille.fnclcc.fr.*

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