

## 1 ***Supplementary Transplantation-related Procedures***

2 In the autologous group, the conditioning regimen was based on i. melphalan (200 or 140  
3 mg/sm, respectively MAC and RIC conditioning) on day -2 for multiple myeloma  
4 patients; ii. on carmustine (400 mg/sm) on day -6 and thiotepa 5 mg/kg/12 hours on days  
5 -5 and -4 for patients affected by primary central nervous system lymphoma (PCNSL);  
6 and iii. on the BEAM scheme (carmustine 300 mg/sm on day -7, cytarabine 200 mg/sm/12  
7 hours, etoposide 200 mg/sm on days -6, -5, -4, -3 and melphalan 140 mg/sm on day -2)  
8 for patients suffering from Hodgkin and non Hodgkin lymphomas other than PCNSL. For  
9 patients affected by neurological disease, conditioning was highly immunosuppressive,  
10 using BEAM plus anti-thymocyte globulin (ATG)<sup>1</sup>. The graft source was PBSCs,  
11 mobilized with subcutaneous granulocyte-colony-stimulating factor, collected by  
12 leukapheresis and cryopreserved. Filgrastim was administered from Day +1 after  
13 autologous transplant until neutrophil recovery (II day of N > 1000/mcl).

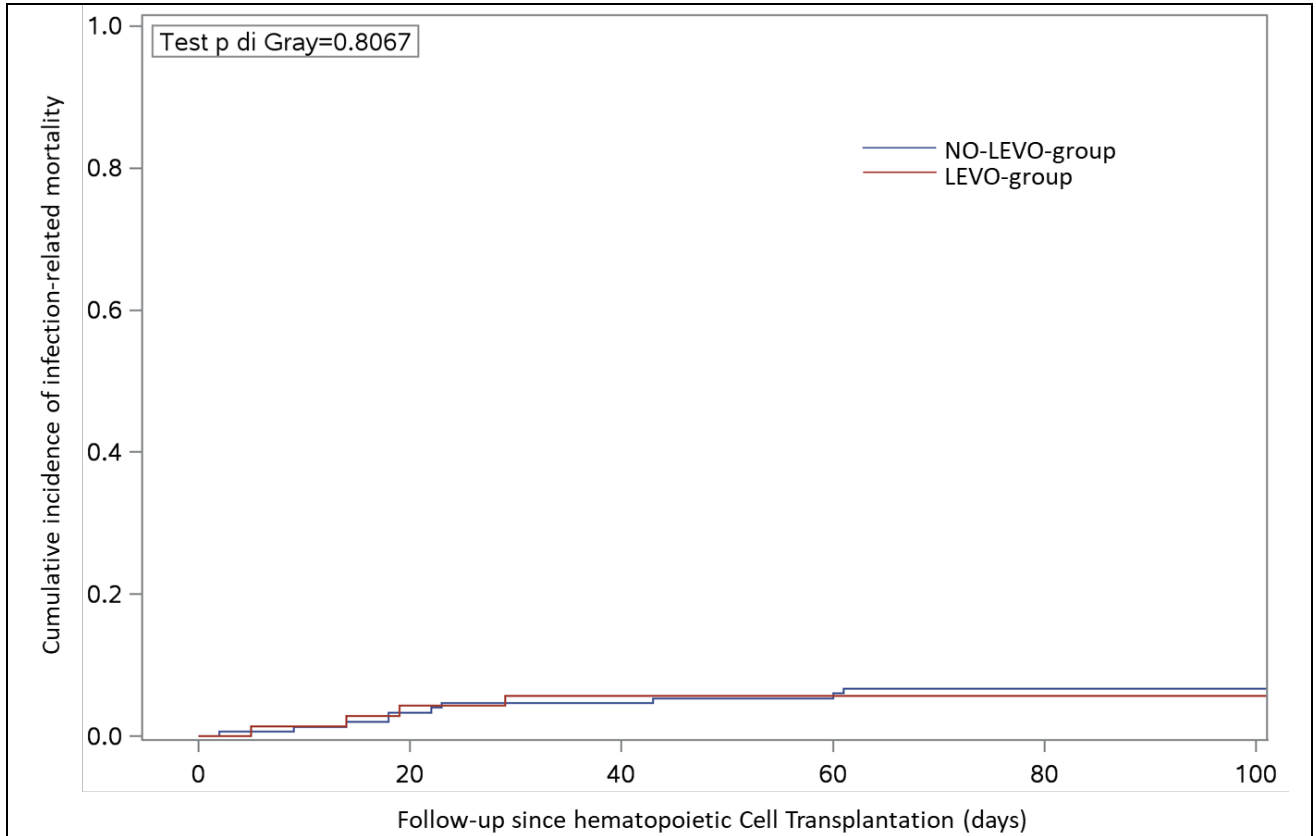
14 In the allogeneic group, PBSCs were mobilized with subcutaneous granulocyte-colony-  
15 stimulating factor and collected by leukapheresis and infused without any *ex-vivo*  
16 manipulation in the majority of transplants. Bone marrow was collected from the  
17 posterior superior iliac crests and infused according to standard guidelines. Cord blood  
18 units were infused intravenously or intra bone.

19 Starting from January 2019, patients transplanted with a CD3<sup>+</sup> graft content above  
20  $300 \times 10^6/\text{kg}$  routinely received one single administration of ATG on day 5 at the dose of  
21 5 mg/kg with the aim of minimizing GVHD risk<sup>2</sup>.

22 Starting from May 2020, we added the use of granulocyte-colony-stimulating-factors in  
23 all transplant recipients, given as a single peg-filgrastim dose or daily filgrastim until  
24 engraftment.

26 **Supplementary Figure 1.** Cumulative incidence of infection-related mortality until day  
 27 +90 post-transplant according to the use of prophylaxis in allo-HSCT recipients.

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Cumulative incidence of IRM in allogenic stem cell transplantation (95%CI)

Follow-up (days)	LEVO-group	NO-LEVO-group
30	5.7 (1.8 – 12.9)	4.7 (2.1 – 8.9)
60	5.7 (1.8 – 12.9)	6.0 (3.0 – 10.6)
90	5.7 (1.8 – 12.9)	6.7 (3.4 – 11.5)

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34 **Supplementary Table 1.** Detailed description of the more represented types of antibiotic  
 35 escalation in autologous stem cell transplantation.

Use of levofloxacin prophylaxis	Broad-spectrum antibiotics at first FN episode	DAP or VAN	AMK or GEN	MEM	Frequency	Percent	Cumulative frequency	Cumulative percent
NO	PTZ	0	0	1	6	12.77	11	23.40
NO	PTZ	1	0	0	12	25.53	23	48.94
NO	PTZ	1	0	1	11	23.40	34	72.34
YES	PTZ	1	0	1	2	4.26	43	91.49
YES	PTZ+VAN	0	0	1	2	4.26	45	95.74
YES	CAZ	0	0	1	2	4.26	47	100.00

36 Legend: 0=no; 1=yes

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38 **Supplementary Table 2.** Detailed description of the more represented types of antibiotic  
 39 escalation in allogeneic HSCT.

Use of levofloxacin prophylaxis	Broad-spectrum antibiotics at first FN episode	DAP or VAN	AMK or GEN	MEM	Frequency	Percent	Cumulative frequency	Cumulative percent
NO	MEM	0	1	-	2	1.69	5	4.24
NO	MEM	1	0	-	4	3.39	9	7.63
NO	PTZ	0	0	1	19	16.10	32	27.12
NO	PTZ	0	1	1	5	4.24	38	32.20
NO	PTZ	1	0	0	14	11.86	52	44.07
NO	PTZ	1	0	1	17	14.41	69	58.47
NO	PTZ	1	1	1	3	2.54	72	61.02
YES	CAZ	1	0	1	4	3.39	81	68.64
YES	MEM	1	0	-	4	3.39	86	72.88
YES	PTZ	0	0	1	11	9.32	104	88.14
YES	PTZ	0	1	1	2	1.69	106	89.83
YES	PTZ	1	0	1	12	10.17	118	100.00

40 Legend: 0=no; 1=yes

41 **Supplementary Table 3.** Patients' distribution according to ESBL BSI or CR BSI or  
 42 acute GHVD occurrence within 100-day since allogeneic HSCT.

Use of levofloxacin prophylaxis	ESBL BSI <100 days	CR BSI <100 days	Acute GVHD	Frequency	Percent	Cumulative frequency	Cumulative percent
NO	0	0	0	107	50.95	107	50.95
NO	0	0	1	32	15.24	139	66.19
NO	1	0	0	1	0.48	140	66.67
NO	1	0	1	3	1.43	143	68.10
NO	1	1	1	1	0.48	144	68.57
YES	0	0	0	53	25.24	197	93.81
YES	0	0	1	11	5.24	208	99.05
YES	0	1	1	1	0.48	209	99.52
YES	1	0	0	1	0.48	210	100.00

43 Legend: 0=no; 1=yes

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57 **Supplementary Table 4.** Etiology of Gram positive bacteria pre-engraftment blood-  
 58 stream infections and antimicrobial resistance in ASCT and allo-HSCT recipients,  
 59 according to levofloxacin prophylaxis administration.

Blood cultures' isolates characteristics	Total bacterial isolates from blood cultures					
	Group A	Group B	p-Value	Group C	Group D	p-Value
<b><u>Gram positive bacteria</u></b>	<b>0</b>	<b>10</b>	-	<b>18</b>	<b>37</b>	-
<i>Staphylococcus</i> spp	0 (0%)	5 (50%)	-	4 (22%)	17 (46%)	0.139
<i>S. aureus</i>	0 (0%)	1 (20%)	-	0 (0%)	17 (46%)	-
– MR	0 (0%)	1 (100%)		0 (0%)	0 (0%)	
– FQs resistant	0 (0%)	0 (0%)		0 (0%)	0 (0%)	
CoNS	0 (0%)	4 (80%)		4 (100%)	17 (100%)	
– MR	0 (0%)	2 (100%)		4 (100%)	17 (100%)	
– FQs resistant	0 (0%)	4 (100%)		4 (100%)	17 (100%)	
<i>Enterococcus</i> spp	0 (0%)	2 (20%)	-	14 (78%)	13 (35%)	<b>0.004</b>
– <i>E. faecalis</i>		0 (0%)		5 (36%)	3 (23%)	
– <i>E. faecium</i>	0 (0%)	2 (100%)		9 (64%)	9 (69%)	
– VR-Enterococci	0 (0%)	0 (0%)		2 (14%)	5 (38%) <sup>@</sup>	
	0 (0%)					
<i>Viridans streptococci</i>	0 (0%)	2 (20%)	-	0 (0%)	3 (8%)	0.543
Others	0 (0%)	1 (10%) #	-	0 (0%)	4 (11%) <sup>§</sup>	0.291

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 61 Legend: Group A, autologous stem cell transplantation LEVO-group; Group B, autologous stem cell  
 62 transplantation NO-LEVO-group; Group C, allogeneic hematopoietic stem cell transplantation LEVO-  
 63 group; Group D, allogeneic hematopoietic stem cell transplantation NO-LEVO-group; FQs,  
 64 fluoroquinolones; MR, methicillin-resistant; CoNS, Coagulase negative staphylococci; VR, vancomycin  
 65 resistant.

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 67 <sup>@</sup>1 *Enterococcus casseliflavus* intrinsically resistant to vancomycin

68 <sup>#</sup>1 *Micrococcus luteus*

69 <sup>§</sup>1 *Clostridium ramosum*, 1 *Corynebacterium aurimucosum*, 2 *Streptococcus gallolyticus*

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75           **ADDITIONAL REFERENCES**

- 76           [1] Sharrack B, Saccardi R, Alexander T, *et al.* Autologous haematopoietic stem cell transplantation and other  
77           cellular therapy in multiple sclerosis and immune-mediated neurological diseases: updated guidelines and  
78           recommendations from the EBMT Autoimmune Diseases Working Party (ADWP) and the Joint and the  
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