

Durable discontinuation of systemic therapy in patients affected by chronic graft-versus-host disease

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Received: August 12, 2021.

Accepted: March 24, 2022.

Prepublished: May 26, 2022.

<https://doi.org/10.3324/haematol.2021.279814>

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Supplementary Materials

Supplemental Table 1. Systemic Therapies Given for Chronic GVHD	
Therapy	Patients receiving therapy, N (%)
Prednisone	647 (94.6)
Tacrolimus	383 (56.0)
Sirolimus	265 (38.7)
Mycophenolate mofetil	198 (28.9)
Cyclosporine	172 (25.1)
Extra corporeal photopheresis	170 (24.9)
Rituximab	113 (16.5)
Methylprednisolone	106 (15.5)
Imatinib	60 (8.8)
Methotrexate	54 (7.9)
Ruxolitinib	27 (3.9)
Ibrutinib	22 (3.2)
IL-2	17 (2.5)
Dexamethasone	15 (2.2)
Ofatumumab	14 (2.0)
Nilotinib	13 (1.9)
Bortezomib	13 (1.9)
Belumosudil	12 (1.8)
Azathioprine	10 (1.5)
Hydroxychloroquine	9 (1.3)
Tocilizumab	6 (0.9)
Total nodal irradiation	6 (0.9)
Etanercept	5 (0.7)
Lenalidomide	5 (0.7)
Anti-thymocyte globulin	4 (0.6)
Alemtuzumab	4 (0.6)
Dasatinib	4 (0.6)
Anakinra	4 (0.6)
Carfilzomib	4 (0.6)
Cyclophosphamide	3 (0.4)
Pentostatin	3 (0.4)
Infliximab	3 (0.4)
Thalidomide	3 (0.4)
Alefacept	3 (0.4)
Ixazomib	3 (0.4)

Supplemental Table 1. Systemic Therapies Given for Chronic GVHD	
Therapy	Patients receiving therapy, N (%)
Entospletinib	1 (0.1)
Abatacept	1 (0.1)
Denileukin diftitox	1 (0.1)
Ustekinumab	1 (0.1)
Mesenchymal stem cells	1 (0.1)

Supplemental Table 2. Additional Demographic Characteristics	
Characteristic	N (%)
Disease status at HCT	
Early	268 (39.2)
Intermediate	281 (41.1)
Advanced	135 (19.7)
Center location	
Pacific/mountain	380 (55.6)
Central	189 (27.6)
Eastern	115 (16.8)
Year of HCT	
1987-2005	4 (0.6)
2006-2007	121 (17.7)
2008-2009	221 (32.3)
2010-2011	127 (18.6)
2012-2013	54 (7.9)
2014-2015	131 (19.2)
2016-2017	26 (3.8)

Supplemental Table 3. Variables Tested for Significance in Univariate Models
<i>Transplant variables</i>
Age at transplant (18-30, 31-60, >60 years)
Disease status at HCT (early, intermediate, advanced)
Donor type (HLA-identical sibling, HLA-matched/other HLA-mismatched relative, HLA-matched unrelated donor, HLA-mismatched unrelated donor)
Transplant source (peripheral blood, bone marrow, cord blood)
Conditioning regimen (myeloablative, non-myeloablative)
GVHD prophylaxis (CNI + MTX +/- others, CNI + MMF +/- others, other)
Site location (Pacific/Mountain, Central, Eastern)
Donor/recipient gender (female/male, all others)
Donor/recipient genders (female/female, female/male, male/female, male/male)
Donor/recipient CMV status (negative/negative, negative/positive, positive/negative, positive/positive)
Year of transplant (1987-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2017)
Months from HCT to chronic GVHD
Case type (incident, prevalent)
<i>Clinical variables</i>
Chronic GVHD severity (none/mild, moderate, severe)
Grade II-IV acute GVHD onset type (de novo, quiescent, progressive)
Platelet count at diagnosis of chronic GVHD ($\geq 100,000/\mu\text{L}$, $< 100,000/\mu\text{L}$)
Bilirubin at diagnosis of chronic GVHD (≥ 2 mg/dL, < 2 mg/dL)
Skin score (not involved, mild, moderate/severe)
Lung (not involved, mild, moderate/severe)
Liver (not involved, mild, moderate/severe)
GI (not involved, mild, moderate/severe)
Esophagus (not involved, mild, moderate/severe)
Upper GI (not involved, mild, moderate/severe)
Lower GI (not involved, mild, moderate/severe)
Eye (not involved, mild, moderate/severe)
Mouth (not involved, mild, moderate/severe)
Joint (not involved, mild, moderate/severe)
Genital (not involved, mild, moderate/severe)
Number of body sites involved by chronic GVHD (0-2, ≥ 3)
KPS (< 80 , ≥ 80)
Lee symptom skin scale
Lee symptom energy scale
Lee symptom lung scale

Lee symptom eye scale
Lee symptom nutrition scale
Lee symptom psychological scale
Lee symptom mouth scale
Lee symptom overall summary scale
FACT-G (0-108)
SF36 standardized physical component score
SF36 standardized mental component score
SF36 norm-based physical functioning score
SF36 norm-based role-physical score
SF36 norm-based bodily pain score
SF36 norm-based general health score
SF36 norm-based vitality score
SF36 norm-based social functioning score
SF36 norm-based role-emotional score
SF36 norm-based mental health score
Abbreviations CNI: calcineurin inhibitor, GI: gastrointestinal, GVHD: graft-versus-host disease, HCT: hematopoietic cell transplant, ST: systemic therapy, KPS: Karnofsky performance scale, MMF: mycophenolate mofetil, MTX: methotrexate

Supplemental Table 4. Additional Chronic GVHD Characteristics at Engraftment	
Characteristic	N (%)
Incident (< 3 months)	490 (71.6)
Prevalent (3-12 months)	194 (28.4)
Bilirubin at chronic GVHD diagnosis	
<2 mg/dL	626 (93.9)
≥2 mg/dL	41 (6.1)
Missing	N=17
No. of sites involved	
0	10 (1.5)
1	88 (12.9)
2	161 (23.5)
3	193 (28.2)
4	142 (20.8)
5	54 (7.9)
6	34 (5.0)
7	2 (0.3)
Months from chronic GVHD diagnosis to enrollment	Median (range)
Incident	0.3 (-0.1-3)
Prevalent	6.9 (3-12)

Supplemental Table 5. Causes of Death	
Cause	N (%)
Bleeding	4 (2.60)
Chronic GVHD - NOS	31 (20.13)
Chronic GVHD - infection	31 (20.13)
Chronic GVHD - organ failure	7 (4.55)
Infection	24 (15.58)
Organ failure	10 (6.49)
Other	5 (3.25)
Respiratory failure	13 (8.44)
Secondary malignancy	4 (2.60)
Unknown	25 (16.23)
Key: GVHD – graft versus host disease, NOS – not otherwise specified	