Impact of aGVHD on Patient Outcomes

aGVHD is a prevalent complication of allo-HSCT[1]

The use of allo-HSCT has grown steadily since the year 2000, with close to 20,000 procedures performed annually in Europe and approximately 8000 procedures in the United States in 2021.[2,3]

aGVHD affects up to half of patients undergoing a matched-related or unrelated allo-HSCT, following standard aGVHD prophylaxis[1]

Up to 60% of patients with aGVHD respond to corticosteroids, the standard first-line therapy for GVHD[4,5]

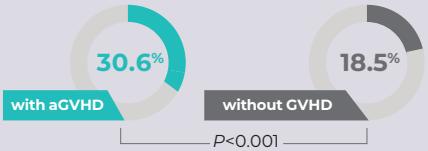
54% overall survival 3 years after allo-HSCT (for 2011-2015)[6a]

A DIAGNOSIS OF aGVHD...

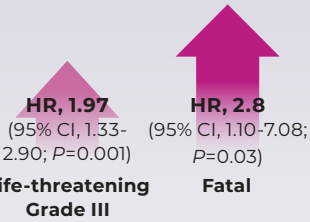
Increases the risk of severe infections and organ dysfunction[7b,8c,9d]

Severe Infections

1.9x greater odds of developing 4+ severe infections for patients with aGVHD vs patients without GVHD (OR, 1.9; 95% CI, 1.7-2.3; *P*<0.001)[7b]



Significant increase in the risk of developing life-threatening grade III and fatal infections for patients with aGVHD vs patients without GVHD[8c]



Organ Dysfunction

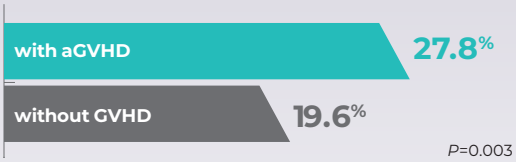
Grades III-IV aGVHD are associated with **significantly higher cumulative incidences of organ complications**[9d]

Increases the risk of death[7b,10e,11f,12g,13h]

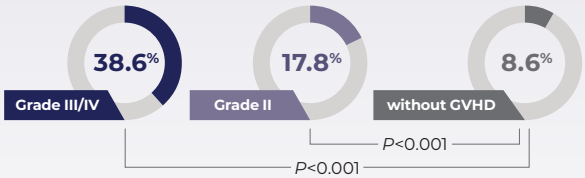
1.6x-2.2x increased mortality rate for patients with aGVHD vs patients without GVHD from real-world experience[7b,10e]

Higher in-hospital mortality rate for patients with aGVHD vs patients without GVHD (16.2% vs 5.3%; *P*<0.01)[11f]

Increased mortality rate for patients with aGVHD vs patients without GVHD[12g]



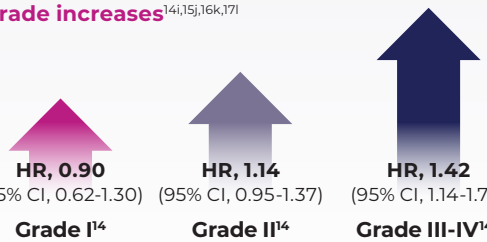
Patients with higher grades of aGVHD (III-IV) are at **greater risk of non-relapse mortality (NRM)**[13h]



Increases the risk of cGVHD[14i,15j,16k,17l]

- **aGVHD** is an independent risk factor for cGVHD[18m]
  - **cGVHD** occurs in ~**60% of patients with a prior aGVHD diagnosis**[18m,19n]

- **Risk of cGVHD increases as aGVHD grade increases**[14i,15j,16k,17l]



- cGVHD is the **leading cause of late NRM** after allo-HSCT[20p]
  - **37.8% of cases of NRM after allo-HSCT are due to cGVHD**, and are associated with organ failure and infection

There is an urgent need for effective prophylaxis and treatment options to improve outcomes for patients with aGVHD post allo-HSCT, particularly in higher grades of aGVHD

aGVHD=acute GVHD; allo=allogeneic; CI=confidence interval; cGVHD=chronic GVHD; EBMT=European Society for Blood and Marrow Transplantation; GVHD=graft-versus-host disease; HR=hazard ratio; HSCT=hematopoietic stem cell transplantation; NRM=non-relapse mortality; OR=odds ratio.

[a]A multicenter retrospective study performed by the Transplant Complications and Chronic Malignancies Working Parties of the EBMT of 102,557 adult patients who received their first allo-HSCT between 1990-2015, to examine changes in survival outcome over time in an aGVHD-affected patient cohort.[6]

[b]A retrospective, nationwide cohort study using administrative claims from the French national health data system, Système National des Données de Santé (SNDS), from January 2011 through December 2019, examining the clinical and economic burden associated with GVHD in 6385 adult patients who underwent allo-HSCT.[7]

[c]A retrospective chart review of 431 consecutively transplanted allo-HSCT adult and pediatric patients, from 2008 to 2011, to determine the infectious risk post HSCT.[8]

[d]A retrospective chart review of 3426 adult patients who underwent a first and only allo-HSCT at the Fred Hutchinson Cancer Center, between 2001 and 2019, to examine late effects of severe aGVHD on quality of life, medical comorbidities, and survival.[9]

[e]A retrospective cohort study using administrative claims from the German statutory health insurance database, from January 2008 through December 2018, examining the clinical and economic burden associated with aGVHD in 555 adult patients who underwent allo-HSCT.[10]

[f]A retrospective analysis of discharge records indicating allo-HSCT from the National Inpatient Sample database, from January 2009 through December 2013, to examine mortality, length of stay, and costs associated with aGVHD during hospitalization of adult and pediatric patients.[11]

[g]A retrospective, observational, US administrative claims-based study using data from the IBM MarketScan Commercial Claims and Encounters database, from July 2008 through September 2016, examining clinical outcomes and resource utilization for 1215 patients with or without gastrointestinal aGVHD after allo-HSCT.[12]

[h]A retrospective multicenter analysis of data from the EBMT registry, between 2009 and 2017, examining 805 adult patients who were given a first allo-HSCT with post-transplant cyclophosphamide to examine relapse and survival.[13]

[i]A retrospective study of 2941 adult and pediatric patients, who received their first allo-HSCT between July 1992 and December 2005 at the Fred Hutchinson Cancer Research Center/Seattle Cancer Care Alliance, to compare risk factor profiles for Grades II-IV acute and chronic GVHD.[14]

[j]A retrospective study of 679 adult and pediatric patients who underwent allo-HSCT at Huddinge University Hospital, between November 1975 and December 2000 and survived more than 3 months, to evaluate predisposing factors for the development of moderate-to-severe cGVHD.[15]

[k]A retrospective observational study of 390 patients ≥16 years old who received allo-HSCT between 1999 and 2013 at the University Hospital of Regensburg, and their donors, to identify risk factors for the occurrence of cGVHD and analyze outcomes of patients with cGVHD.[16]

[l]A retrospective study of 300 pediatric patients, who underwent allo-HSCT between January 2015 and December 2017 at Peking University Institute of Hematology, and were followed longitudinally until death or loss to follow-up to report the incidence, risk factors, and outcomes of cGVHD.[17]

[m]A retrospective cohort study of 784 consecutive adult and pediatric patients, who received their first allo-HSCT at the University of Minnesota, to analyze the impact of aGVHD treatment response on the severity and clinical outcomes of cGVHD.[18]

[n]A retrospective, longitudinal, observational study of 317 adult and pediatric patients, who underwent allo-HSCT within 2017 in 6 transplant centers across Europe, to analyze the incidence of late aGVHD and cGVHD.[19]

[o]Statistically significant association with increased risk of cGVHD relative to patients without GVHD.[14]

[p]A multicenter study of data from 937 adult patients enrolled from 15 US institutions, between 2007 and 2019, on 2 prospective, longitudinal, observational studies through the Chronic GVHD Consortium, to determine the cumulative incidence of cGVHD and NRM after allo-HSCT.[20]

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