ANALYSIS OF CMV REACTIVATION RISK AFTER T CELL REPLETE HAPLOIDENTICAL AND MATCHED DONOR ALLOGENEIC HEMATOPOIETIC CELL TRANSPLANTATION

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INTRODUCTION

Cytomegalovirus reactivation is a frequent complication of allogeneic hematopoietic stem cell transplantation. We analyzed retrospectively the incidence of CMV reactivation after haploidentical donor transplantation using post-transplant high dose cyclophosphamide (ptCy) in comparison with standard matched sibling or unrelated donor transplants.

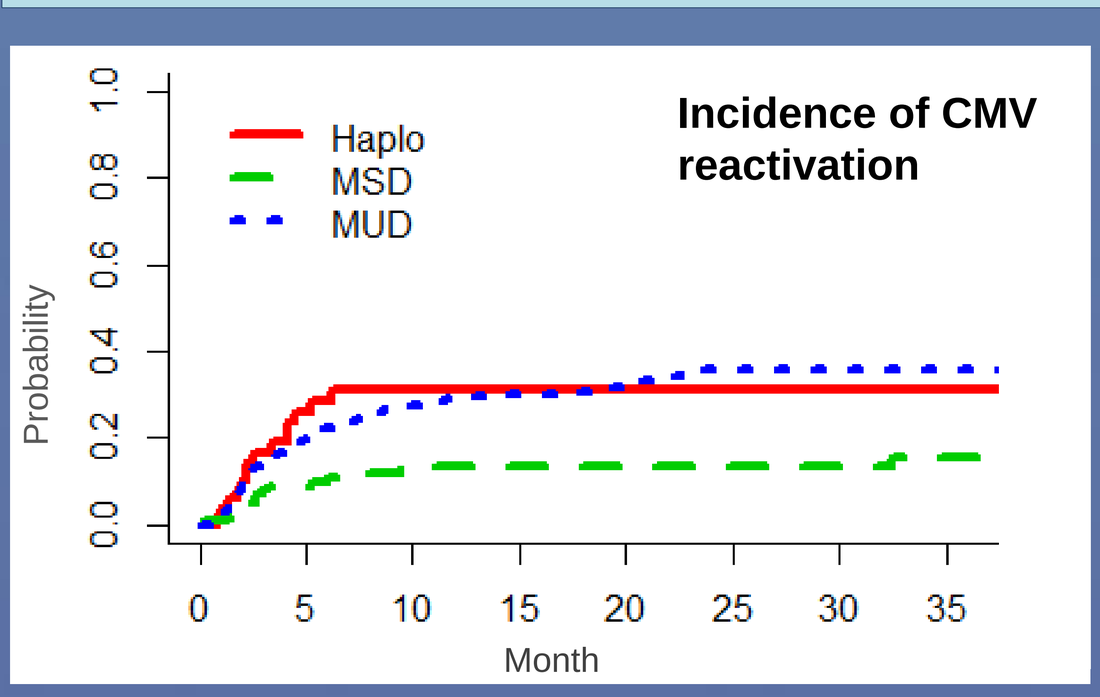
METHODS

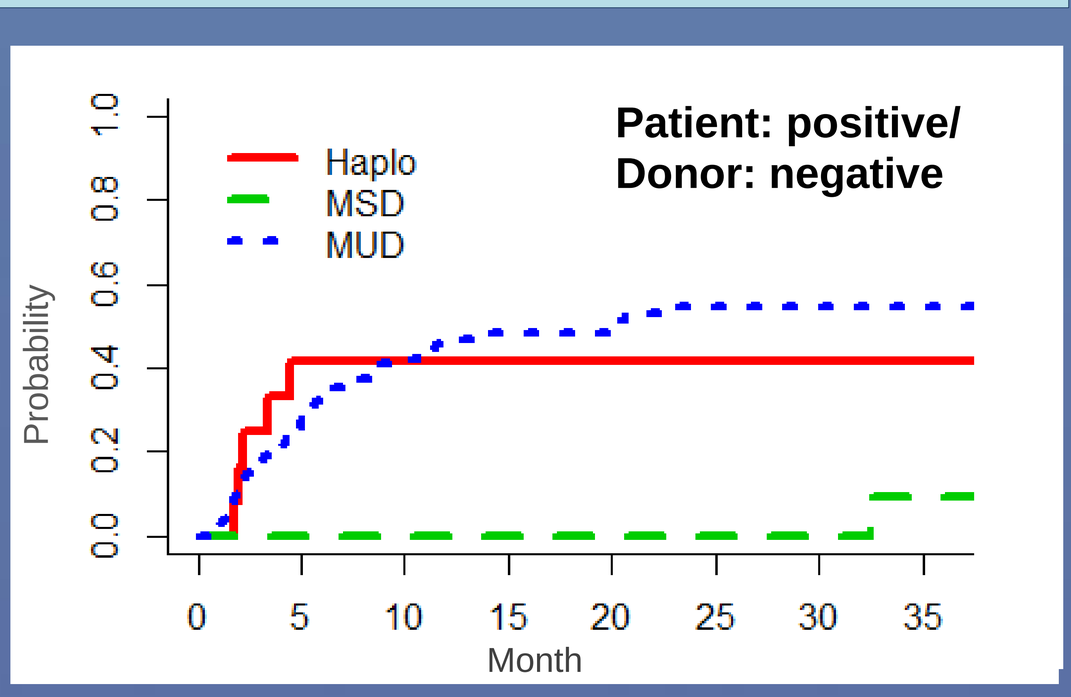
Data on patients who underwent first alloHCT at Institute of Hematology and Blood Transfusion in Prague between 2/2010 and 7/2019 was extracted from our transplant database. CMV was measured in peripheral whole blood by Q-PCR every week in early post-transplant period and later usually less frequently during outpatient controls. Detected CMV quantity was normalized to 10000 human genome equivalents assessed by quantification of albumin gene in the sample. Time to first clinically significant positivity (more than 100 copies of CMV per genomic equivalent) was calculated. Cumulative incidence estimates were calculated using R 3.6. GvHD prophylaxis was CSA+MMF in MSD transplants, CSA+MMF+ATG in MUD transplants and CSA+MMF+ptCy in Haplo transplants.

RESULTS

434 patients were included in the analysis: Donors were haploidentical (Haplo) in 11,3%, matched sibling (MSD) in 27% or match unrelated (MUD) in 61,8% of patients. Median age was 50/49/53 in Haplo/MSD/MUD group, respectively. Myeloablative regimen was administrated to 301 patients (70,3%), reduced intensity conditiong to 127 patients (29,7%). Majority of patients received peripheral blood progenitor cell grafts (90,6%), remaining patients received bone marrow. Allogeneic transplantation was performed mainly for acute myeloid leukemia (198 patients, 45,6%), acute lymphoblastic leukemia (62 patients, 14,3%), myeloproliferative diseases (51 patients, 11,8%) and myelodysplastic syndrome (50 patients, 11,5%). Donor-recipient CMV serology status was negative/negative in 12% (16% haplo, 9% MSD, 12.5% MUD), positive/negative in 36% (29.5% haplo, 14% MSD, 46% MUD), negative/positive in 11% (11% haplo, 14% MSD, 9% MUD), positive/positive in 41% (43% haplo, 61% MSD, 33% MUD).

Overall survival of the whole cohort was 57% and was not different among the groups. Cumulative incidence of CMV reactivation was 13%, 29% and 31% after MSD, MUD and haploidentical donor transplantation (p = 0.001). In a subgroup analysis according to patient/donor CMV serostatus and donor type, the incidence of CMV reactivation did not differ significantly among groups except in patient positive/donor negative subset, where we have observed significantly lower incidence in MSD patients (9%) compared to haplo (42%) and MUD (54%), p = 0.005. Low number of patients in most serostatus/donor type groups limits the value of this analysis.





CONCLUSION

We observed no difference in the incidence of CMV reactivation after allogeneic HCT from haploidentical and matched unrelated donors. Patients who received transplant from matched sibling donors had significantly lower risk of CMV reactivation.