patients were transplanted without serotherapy. The most frequent mismatch in our cohort of the patients was single mismatch on C locus (28%), followed by combined mismatch in class I and II (24%). Multiple mismatch in class I was present in 19% and 1 single mismatch on A or B loci in 8% of the patients. Seven percent of the patients received graft with 2 mismatches on C, while 7% received graft with 1 and 7% with multiple mismatch in class II HLA. **Results:** 34 patients developed GVHD (Gr I-38%, Gr II-38%, Gr III-12%, and Gr IV-12%). Forty-one patients died after BMT; 40% for relapse, 31% for infection, 18% for GVHD, and 11% due to VOD. Three year probability of survival is 40% for AML, 60% for CML, 75% for ALL, and 30% for MDS patients. Three-year probability of survival of the 17 patients, 14 of whom in advanced stage of the disease, who received graft mismatched for DRB1, is 50%. **Summary:** BMT from partially matched alternative donors offer chance for the patients without fully (10/10) matched donor. ATG in conditioning decreases the risk of severe GVHD (24% Gr III+IV). Relapse and infection were the most common causes of treatment failure in our cohort of the patients.

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A SYSTEMATIC REVIEW AND META ANALYSIS OF UNRELATED DONOR UMBILICAL CORD BLOOD TRANSPLANTATION VERSUS UNRELATED DONOR BONE MARROW TRANSPLANTATION IN ADULT AND PEDIATRIC PATIENTS

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Several studies have been performed to compare the results of unrelated donor bone marrow transplantation (UBMT) with unrelated donor cord blood transplantation (UCBT). In order to objectively analyze these data, we performed a systematic review and meta analysis of pooled data on comparative studies on unrelated donor BMT versus UCBT to evaluate if UCBT is equivalent to BMT in patients requiring a haematopoietic stem cell transplant. Combining the studies, 161 children and 331 adults undergoing UCBT (mostly 1-2 antigen mismatched), as well as 316 children and 646 adults undergoing UBMT (almost entirely fully matched with the recipient) were analyzed. Post-transplant engraftment of neutrophils and platelets occurred slower and more infrequently with UCBT, although the difference was only in the order of 10–20%. Two to 3 year overall survival was equivalent in children undergoing UCBT (35 to 59%) compared to those who had matched unrelated donor BMT (41 to 57%). In pooled comparisons of the studies between UCBT and UBMT in children, chronic graft-versus-host disease (GVHD) was less with UCBT (pooled estimate 0.26, CI 0.12–0.57, $P = .0007$) although grade III–IV acute GVHD (pooled estimate1.46, CI 0.42–5.03) was no different. There was a trend towards lower overall mortality in children undergoing UCBT (pooled estimate 2.12, CI 0.94–4.77, $P = .07$). For adults, relapse rates (pooled estimate 0.86, CI 0.62–1.19), transplant related mortality (pooled estimate 1.04, CI 0.52–2.08) and disease free survival (pooled estimate 0.59, CI 0.18–1.96) were not statistically different. In conclusion, pooled analysis of comparative studies in children and adults revealed that 1-2 antigens mismatched UCBT had consistently equivalent survival outcomes when compared with fully matched unrelated donor BMT.

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UNMANIPULATED HLA 2-3 ANTIGEN-MISMATCHED (HAPLOIDENTICAL) NONMYELOABLATIVE STEM CELL TRANSPLANTATION

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To expand the donor pool, allogeneic stem cell transplantation (SCT) using HLA 2-3 antigen-mismatched (haploidentical) related donors has been studied. To date, there are a few reports describing nonmyeloablative stem cell transplantation (NST) from HLA-haploidentical donors. We recently showed that a nonmyeloablative regimen consisting of fludarabine, busulfan, and ATG was sufficiently immunosuppressive to achieve donor type engraftment in transplantation from HLA-haploidentical donors who had 1 antigen-mismatch in the GVH direction and 2-3 antigen-mismatches in the HVG direction (Leukemia, 2003). In that study, however, acute GVHD could not be sufficiently controlled with a GVHD prophylaxis using cyclosporine or tacrolimus. We have been testing a protocol for HLA-haploidentical NST from 2-3 antigen-mismatched donors in the GVH direction without T-cell depletion using more intensified GVHD prophylaxis (tacrolimus and methylprednisolone). **Methods:** We performed an HLA-haploidentical NST from 2-3 antigen-mismatched donors in the GVH direction. Between Jan 2000 and July 2005, 30 patients with hematologic malignancies, including AML, ALL, CML, and NHL, underwent allogeneic SCT in Osaka University Hospital. The median age of the patients was 50 (range 28–63). All patients except for 3 patients with Philadelphia chromosome were in advanced stage at the time of transplantation. Four patients had a prior autologous SCT, and all of them underwent HLA-haploidentical NST because of recurrence of the original disease. Preconditioning regimen consists of fludarabine (30 mg/m^2 × 6), busulfan 4 mg/kg × 2, and rabbit ATG (Fresenius) 2 mg/kg × 4. GVHD prophylaxis regimen consists of tacrolimus 0.02 mg/kg/day and methylprednisolone 1 mg/kg/day from day 0. **Results:** All patients except for one achieved donor type engraftment. The patient who had a rejection was successfully rescued with second transplantation from the same donor. Fifteen patients did not develop acute GVHD clinically, and only 5 patients developed grade II GVHD. The main causes of death were relapse and thrombotic microangiopathy. The overall survival at 3 years was 49.2 % at a median follow-up of 664 days (range, 37–1918 days). **Conclusions:** HLA-haploidentical NST may be feasible for patients who are at high risk and lack available donors, and who are considered ineligible for myeloablative regimens because of advanced age or comorbidities, although our results have to be confirmed in a large-scale study.

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THE IMPACT OF HLA-B ALLELE LEVEL MATCHING ON UNRELATED STEM CELL DONOR TRANSPLANTS IN GERMANY

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The German Consensus for matching allogeneic donors of hematopoietic progenitor cell (1996/2000) recommends matching donors for HLA-A,B on serological level (2 digit allele level matching within split groups for B15, B40) and by allele level for DRB1 and, if possible, DQB1. We have retrospectively performed sequencing based HLA-A,B,C analyses for 262 adult unrelated donor recipient pairs matching for A, B, and DRB1 according to the above definition in order to see if outcome could be improved by more stringent selection criteria. Accepted diagnoses were ALL (21%), AML (39%), CML (33%), and MDS (7%). Sixty percent of the patients were male with a median age of 38 (range 18–67) whereas 67% of the donors were male with a median age of 36 (range 19–58). The patients were transplanted in Berlin (56), Erlangen (6), Hannover (9), Heidelberg (18), Mainz (56), Munich (50), Regensburg (13), Ulm (11), and Wiesbaden (43) using heterogeneous regimens for conditioning and GvHD-prophylaxis. After analyzing the relevant covariates, we stratified the Cox proportional hazard model for patient age (< > median), diagnosis, and disease phase (early 145, advanced 117). We found 20 pairs with an allele level difference for A, 43 for B, 112 for C, and 20 for DQB1. The only significant detrimental effect for survival was seen for allele level differences of HLA-B with R = 1.56 (1.01 . . . 2.41) and $P < .05$. The survival curves did not suggest an influence of any other HLA difference mentioned except for advanced disease where allele differences of HLA-A or C may be beneficial, probably due to a GvL effect. Study supported by the German José Carreras Leukemia Foundation.