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THE ESTABLISHMENT OF HLA PHENOTYPE DATA BANK FOR BLOOD DONORS TO REDUCE  
NON-HEMOLYTIC TRANSFUSION REACTION AND PLATELET INFUSION INEFFICACY

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**Background:** HLA antibodies are the main cause leading to non-hemolytic transfusion reaction and platelet infusion inefficacy. In Xi'an city of China, it is a consumption of 122,500 blood units (94% are red blood units, and 6% are whole blood units) and 4500 therapeutic doses of platelet for clinical use per year. As leucocyte depletion is not generally applied, we are confronted with a practical problem to solve, which is that non-hemolytic transfusion reaction and platelet infusion inefficacy caused by HLA antibodies often occur.

**Object:** Our blood center is the recruitment center of Chinese Marrow Donor Program(CMDP), and our laboratory is HLA typing center of this area as well. Most of marrow donors also act as persistent blood donor simultaneously. We will establish HLA typing data bank of these donors and inform them to donate blood or plateletapheresis when non-hemolytic transfusion reaction and platelet infusion inefficacy happen to patients.

**Method:** 14006 marrow donors also act as persistent blood donors. HLA-A, B, DRB1 genotyping methods were adopted with PCR-SSP and PCR-SSOP. Then the HLA typing results with donors' information of ABO and Rh blood type were established into electronic archives, which were administered by computer and kept update.

**Result:** 73 specificities of HLA alleles were identified in 14006 donors. The gene frequencies of HLA-A\*02, A\*11, A\*24, A\*33, B\*13, B\*46, B\*4001 group (B60), B\*1501 group (B62), DRB1\*15, DRB1\*09, DRB1\*04, DRB1\*12 were the four most highest on locus HLA-A, B, DRB1 respectively. The distributions of HLA-A, B, DRB1 alleles consistent with Hardy-Weinberg equilibrium test. HLA-A36, A43, A80, B78, B82 and DR18 were not detected in our study. Two novel alleles were identified and officially assigned by the WHO Nomenclature Committee as HLA-A\*0290 and HLA-B\*4814.

**Conclusion:** The HLA-A, B, DR phenotype data of 14006 persistent donors, almost including all phenotypes of Chinese, have a coincident gene distribution with Chinese North, and have capability of meeting clinical needs in most conditions.