Combining Serology and Molecular Typing of Weak D Typing Strategy in Egypt.

Transfusion. Vol: (53) No: (29); Nov. 2103, 2940-2944.
ISSN:1537-2995.

Abstract:

BACKGROUND: Rh discrepancies are a problem during routine testing because of partial and weak D phenotypes. Some blood units with partial and weak D expression may escape detection by serology. Limitations of serology can be overcome by molecular typing. The objective of study was to compare currently used serologic methods with molecular analysis to determine the potential application of molecular methods to improve D typing strategies and to estimate the frequency of weak D types among the Arab population. **STUDY DESIGN AND METHODS:** Fifty blood donor and patient samples with discrepant results of D phenotyping were subjected to routine serology to define the D phenotype including monoclonal anti-D immunoglobulin M and indirect antiglobulin test. Commercially available panels of monoclonal anti-D were used for identification of partial D and weak D phenotypes. Genomic DNA was evaluated using allele-specific amplification polymerase chain reaction with sequence-specific primers to define weak D type. **RESULTS:** Molecular typing confirmed most of the serology results; three samples that were not clear-cut serologically, were identified by molecular typing, two samples as weak D Type 4.2 (DAR), and one sample as weak D type 4.0. Another two samples identified by serologic panel as weak D were unresolved by molecular typing. A sample with partial D Type II by serology revealed a Weak D Type 4.0 by molecular typing. Results interestingly showed the high frequency of weak D Type 4.2 (DAR) in Egypt. **CONCLUSION:***RHD* molecular typing can solve discrepancies during routine testing due to partial and weak D phenotypes for better transfusion outcome.