

DIFFERENTIAL EXPRESSION OF MICRORNAS IN ACUTE GRAFT-VERSUS-HOST DISEASE: POTENTIAL DIAGNOSTIC BIOMARKERS

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Background: Acute graft-versus-host disease (aGVHD) is a major cause of mortality and morbidity following allogeneic hematopoietic stem cell transplantation. There are currently no non-invasive diagnostic and prognostic tests to predict the risk of aGVHD, response to treatment, and patient survival. Identifying the difference in the expression of microRNAs may be useful in understanding the pathophysiology of aGVHD disease and can be suggested as biomarkers.

Material and methods: In this study 2578 microRNAs were investigated in 2 peripheral plasma pools from 30 aGVHD and 30 non- aGVHD patients and 1 pooled plasma sample from 30 healthy controls with the Affymetrix miRNA 4.1 Array Plates.

Results: Expression analysis identified a significant difference in expression level of 11 microRNAs (miR-455-3p, miR-548a-3p, miR-638, miR-2115-5p, miR-3613-5p, miR-5787, miR-6511b-5p, miR-6729-5p, miR-6732-5p, miR-6776-5p, and miR-6800-3p) in aGVHD patients compared to non-aGVHD and controls. Seven microRNAs (miR-455-3p, miR-638, miR-3613-5p, miR-5787, miR-6729-5p, miR-6732-5p, and miR-6800-3p) were significantly upregulated and four microRNAs (miR-548a-3p, miR-2115-5p, miR-6511b-5p, and miR-6776-5p) downregulated in aGVHD.

Conclusion: Our results showed that circulating microRNAs may potentially be used as diagnostic and prognostic biomarkers for aGVHD.