Minimal residual disease monitoring with high-throughput sequencing of T-cell receptors in cutaneous T-cell lymphoma


BACKGROUND
The most common types of cutaneous non-Hodgkin’s lymphoma include mycosis fungoides (MF) and Sézary syndrome (SS)

AIM
To develop a specific and sensitive tool to monitor minimal residual disease (MRD) in MF and SS

METHODS
Skin samples and peripheral blood mononuclear cells (PBMCs) were derived from subjects receiving allogeneic hematopoietic cell transplantation (HCT) in advanced-stage MF and SS

RESULTS

CONCLUSIONS
• The sensitivity of flow cytometry is inadequate in cases with low tumor burden
• Immunosequencing is both sensitive and specific; therefore, using the immunoSEQ Assay as a method of MRD detection may lead to earlier intervention

The immunoSEQ Assay detected Sézary cells in all 10 subjects before HCT, while flow cytometry detected Sézary cells in only four of the 10 subjects (data not shown)

Five subjects achieved ‘molecular remission’ in blood between +30 and +540 days after HCT (example 2 above). Four of these also achieved molecular clearance in skin after transplant