Elevated p53 protein expression could be a predictor of early relapse after hematopoietic stem cell transplantation in children with acute myelogenous leukemia

**Background:** Dysregulation of genes involved in the cell cycle such as TP53, P21, P16 and PTEN play a key role in oncogenesis. We have earlier reported an increased expression of the TP53 encoded protein p53, in bone marrow samples from pediatric patients with more aggressive myelodysplastic syndromes. The aim of this study was to investigate the protein expression of the cell cycle regulating proteins p53, p21, p16 and PTEN before and after hematopoietic stem cell transplantation (HSCT) in pediatric patients with acute myelogenous leukemia (AML) and evaluate if any potential alterations could predict relapse after HSCT.

**Procedure:** Paraffin embedded bone marrow samples from 34 pediatric patients with AML were collected retrospectively from time of diagnosis and pre- and post HSCT. Immunohistochemistry was performed on tissue microarrays with antibodies against p53, p21, p16 and PTEN. Study material was analyzed by non-linear regression and independent T-tests, and a time-to-event analysis was conducted.

**Results:** The non-linear logistic regression did not significantly predict for relapse at any time point for any of the proteins investigated, but T-tests showed a statistical significant difference in p53 (p=0.010) and p16 (p=0.028) with overexpression in the group of patients who relapsed compared to the relapse-free patients at 6 months post HSCT.

**Conclusion:** Elevated p53 protein expression was found at all time points in the AML relapse group compared to the relapse-free patients, with a significant difference at 6 months post HSCT, indicating that p53 and p16 could be used as a prognostic marker at that time.

**Biography**

Britt Gustafsson has completed her PhD 15 years ago from Karolinska Institutet and has continued her studies in the field of pediatric hematology. She has published more than 60 papers in the field of pediatric hematology. She is a senior pediatric consultant at Center for Allogeneic Stem Cell Transplantation at Karolinska University Hospital. She has also worked as a pediatrician at a smaller mission hospital in Zambia for the last 4 years.

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