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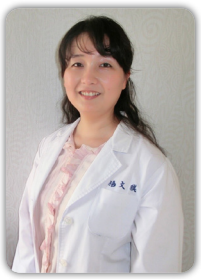

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A novel predictor of leukemia transformation in Myelodysplastic syndrome patients

Myelodysplastic syndrome (MDS) is the disorder of hematopoietic stem cells. In MDS patients, leukemia progression is also associated with iron overload. Hydroxybutyrate dehydrogenase type 2 (BDH2) catalyzes the production of 2,5-dihydroxybenzoic acid (DHBA), an iron-binding component. In the present study, we assessed whether BDH2 can serve as a predictor for leukemia progression in MDS. The higher BDH2 expression (15%) group showed a greater risk for leukemia progression than the lower expression group (3.18%) (P=0.017). Additionally, we investigated the mechanism underlying the prognostic ability of BDH2 by using RNA interference–mediated-knockdown of BDH2 (BDH2-KD) in the acute leukemia cell line, THP1. Cell cycle analysis, surface markers, and special stain studies indicated that BDH2-KD induced differentiation and decreased the growth rate of THP1 cells, which was associated with the retardation of cell cycle. Under next-generation sequences analysis, we also found some candidate genes involving iron metabolism pathway contribute to leukemia transformation in MDS patients. Our study provides a foundation for further research on the role of BDH2 and iron metabolism in the pathogenesis of MDS.

Speaker Biography

Wen-Chi Yang has completed her MD Ph.D. from Kaohsiung medical University. She had 2 years postdoctoral studies from Harvard Medical School during 2007 to 2009 and half year postdoctoral studies from Massachusetts Institue of Technology after then. She is a hematology, medical oncology and hospice care specialist in Taiwan. She is the attending physician of EDA hospital. She is also the chief staff of hematology-oncology division and Biobank of EDA hospital. She is an assistant professor in Medical school, I-Shou University. She set up a molecular medicine lab in Yuan's general hospital. Her interests are in hematology, molecular biology and stem cell biology field.

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