

Endothelial Cell Involvement in JAK2V617F Positive Myeloproliferative Neoplasms

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Myeloproliferative neoplasms (MPN) are clonal hematological malignancies which are frequently associated with an acquired somatic mutation in JAK2 (JAK2V617F). Patients with MPN are at a high risk of developing thrombotic events. Endothelial cell (EC) abnormalities are thought to contribute to this prothrombotic state and involvement of hematopoietic cells (HC) and EC by JAK2V617F provides important information about the cellular origins of the MPN. In order to characterize the involvement of EC in this malignant process in vitro and in vivo methods were performed. EC were assayed in vitro from the peripheral blood of MPN patients and each EC colonies were analysed for its immunophenotypical and genotypical characteristics. Furthermore, CD34⁺ cells from MPN patients were assayed for EC following their transplantation into immunodeficient mice. Selected cells from nonhematopoietic organs of these mice were shown to express transcripts characteristic of EC but not hematopoietic cells and to be JAK2V617F positive. Reduced numbers of colonies from EC culture that were composed of angiogenic monocytes (AM) were present in the blood of MPN patients with a high JAK2V617F burden. These AM were able to contribute to the EC lining and the subendothelium of livers of NOD/SCID mice. These studies indicate that the thrombotic tendency in MPN patients might be due to involvement of EC by JAK2V617F which would lead to apoptosis and reduced numbers of circulating AM progenitors which might impair repair of injured vessels.

Biography

Selcuk Sozer Tokdemir has received her M.D. degree from Istanbul University, School of Medicine in 1997 in Istanbul Turkey and PhD from University of Kentucky in 2004 in Kentucky, USA. She performed her postdoctoral studies at University of Illinois at Chicago (UIC) and Mount Sinai School of Medicine. She is now working as an assistant professor at the Institute of Experimental Medicine at Istanbul University and visiting assistant professor at Mount Sinai School of Medicine. She has published many papers in reputed journals and book chapters.