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Immature platelets fraction as marker of the thrombopoiesis: Clinical applications

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Mobilization of thrombocytopoiesis reserves may release an increased number of immature platelets in the peripheral blood (left adaptation shift). It is known that these reticulated platelets are functionally and metabolically more active than the resting ones. These parameters are now available, but they are not reported because clinicians are not aware that they are available, and the reference ranges with which the patients' results should be interpreted are not known. Our studies of thrombocytopenic patients using an RNA polymethine dye and flow cytometry (the Sysmex XE-2100 Kobe, Japan) showed that the immature platelets fraction (IPF, %) may increase in consumptive disorders and decrease or remain normal when marrow suppression is present. Present study included venous blood from a total of 146 female and 316 male subjects, 19-88 years of age. In summary, the reference range of IPF (1.3±0.9 %; from 0.4 to 5.7%) obtained in this study compared well with the results in the literature. Extreme platelet activation in association with danger of tissue injury was common in blood loss (donors), exercise stress test from 75 to 250 Watt every three minutes on the Treadmill BD-2, pregnancy, allergic asthma, idiopathic thrombocytopenic purpura and patients with acute coronary syndromes. The increase in IPF is, thus, an early indicator of the thrombopoietic state in platelet consumption and destruction. Moreover, increase in immature platelet values might reflect increased thrombotic risk. Thus, we have to pay attention to these conditions for the clinical application of IPF, %.

Biography

Valery M. Pogorelov is Professor of Moscow State Medical and Dental University, Department of Industrial and Clinical Transfusion. His research interests include using the automatic cell blood counter Sysmex XE 2100 (Kobe, Japan) to evaluate the level of the immature platelet fraction (IPF).

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