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Stem Cell Research and Regenerative Medicine

Analyses of apoptosis receptors on CD34 stem cells obtained by apheresis

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Abstarct

Investigation of hematopoietic stem cell (HSC) obtained from bone marrow or from peripheral blood from healthy donors is very important for transplantation or for application to cancer patients after intensive chemotherapy. Quality obtained CD34 stem cells after aphaeresis are most important characteristics for further cell manipulation and for transplantation. Until now, several protocols are mainly focused on techniques describing how to obtained cells from bone marrow or from peripheral blood. In addition, focus on viability cells is also very important. Many of techniques in every day practice are based only to analyses viable cells by enumeration using a light microscopy or by morphology analyses. Several investigation clearly indicated possibility to measured death cells using LDH release in the supernates of cultured cells. Principe of assay is based on fact that death cells released much more LDH released trough altered cell membrane. With introduction of Flow cytometry in research as well as in daily practice during hematopoietic stem cell manipulation, he is described as CD34+ cells. In addition, understanding apoptosis, necrosis and cell proliferation process simultaneously with death receptors describing, a new direction in assessment of CD34 are open. Between many molecules on cell surface, TNF receptors it seems to be useful for quality controls monitoring. Based on this consideration, expression of TNF1(CD120a) and TNFR2 (CD120b) on gated CD34 cells and all peripheral blood cells subsets from healthy donors are analyzed by Flow cytometry (BD, San Jose, USA) in this research. Data indicated that TNFR1 is more associated with apoptosis induction, while TNFR2 are more associated with cell proliferation in different tissues and cell subsets. In this study after aphaeresis, results showing that mean values of increased TNFR2 can indicated that CD34+ cells are more viable in comparison to those CD34+ subpopulation express more TNFR1. A little increase in TNFR2 expression after apheresis indicated successful process cell accumulation and especially cell accumulation with better quality. The cells with high level of TNFR1 can be associated with death cells and consequently with purer transplantation effects. Further study need to confirmed patients survival score based on these donors cell characteristics.

Biography

Vladimir Jurisic studied Medicine at the University of Belgrade, School of Medicine, Serbia, and was obtained PhD at the same University of Belgrade. He obtained short term fellowship for cancer investigation at Charité University Berlin, Germany, and finished several training courses at National and Kapodistrian University of Athens, Greece, and European School of Oncology, Milano, Italy. He has over 180 article in peer reviewed international journals, national journals, and several chapters in international and national books that have been cited over 2030 times and his H-index is 27. He presented many lectures at International conference and he receives several grants including ESMO, EACR, Interferone and Citokine Societies, UNESCO.

Publications

1. Accidental Use of Milk With an Increased Concentration of Aflatoxins Causes Significant DNA Damage in Hospital Workers Exposed to Ionizing Radiation
2. EGFR Polymorphism and Survival of NSCLC Patients Treated with TKIs: A Systematic Review and Meta-Analysis
3. The Role of NK Cells in Cancer
4. Effect of cytokines on NK cell activity and activating receptor expression in high-risk cutaneous melanoma patients
5. Influence of variants in folate metabolism genes on 6-mercaptopurine induced toxicity during treatment for childhood acute lymphocytic leukemia

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