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Abnormalities of bone marrow hematopoiesis in patients with liver cirrhosis

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One of the frequent manifestations of liver cirrhosis (LC) regardless of LC etiology is cytopenia, the severity of which is compounded with disease progression. However, the role of bone marrow hematopoiesis in developing cytopenia remains virtually unexplored. The aim of the study was to analyze the blood parameters and marrow aspirate smears in 19 patients with LC (15 men and 4 women, aged between 24 and 67 years, Me 47 years), including 11 cases with LC of viral etiology, 6 patients – of toxic and 2 – of an autoimmune etiology; Child-Pugh class A - 8 (42%), B - 7 (37%), C - 4 (21%) patients. Analysis of hematological parameters revealed that 40% were found to have anemia, 38% - leukopenia and 53% - thrombocytopenia. Twenty per cent of the patients had a combination of these three cytopenias. Bone marrow findings demonstrated that all lineages can appear dysplastic, and marrow failure correlated with blood parameters. Patients with anemia were revealed to have erythroid hyperplasia in association with morphological signs of dyserythropoiesis, such as the intererythroblastic cytoplasmic bridges, normoblast binuclearity etc. Patients with leukopenia showed delayed neutrophil differentiation (from the band to the segmented neutrophil) with a normal index of neutrophil maturation and the reduction of promyelocyte and myelocyte granulation. In patients with thrombocytopenia, demonstrating predominantly normal megakaryocyte numbers, precursors may demonstrate dysplastic features such as an altered ploidy, mononuclear or binuclear micromegakaryocytes, megakaryocytes with degenerative changes (vacuolization of cytoplasm, non-condensed nucleus chromatin). Thus, the bone marrow of patients with liver cirrhosis is characterized by signs of ineffective hematopoiesis and dysplastic changes of karyocytes.

Biography

Shevela E Y is engaged in researching the properties of bone marrow MSCs in various diseases including hematological malignancies, aplastic anemia, liver cirrhosis and spinal cord injury. The data obtained by her demonstrated a reduction in the number of clonogenic MSCs precursors, their proliferation and suppressor activity, and osteogenic potential in patients with hematologic malignancies and inflammatory diseases, indicating an association between immunopathological processes and quantitative and functional changes of MSCs.

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