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Title: THE LEVEL OF VASCULAR ENDOTHELIAL FACTOR (VEGF) IN THE BLOOD SERUM OF PATIENTS WITH MYELODYSPLASTIC SYNDROME (MDS RAEB I).

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Background:

Have an important role in the pathogenesis of MDS, in particular: immunological disorders, clonal stem cell pathology, gene aberrations, microenvironmental cell pathology, disruption of apoptosis and cytokine production, activation of angiogenesis.

Individual studies revealed the activation of angiogenesis in patients with MDS at the stage of transformation into acute leukemia. However, the importance of impaired expression of VEGF as a determining molecular link in the pathogenesis of MDS has not been studied enough.

Aims:

Considering the above, the aim of this study was to study the change in the concentration of VEGF in the serum of patients with MDS RAEB I depending on the response to therapy with a drug that prevents the development of angiogenesis (lenolidomide).

Methods:

An analysis of clinical and laboratory data of 37 patients (22 men, 15 women) with a diagnosis of MDS RAEB I group of low and intermediate I risk (according to the IPSS scale) was carried out. The age of the patients ranged from 56 to 79 years (median 76.5 years). The duration of the disease for MDS RAEB I at the time of the study varied from 5 to 32 months.

Patients received lenolidomide from a standard starting dose of 10 mg per day for 21 days with a break of 7 days every 28 days. The response to therapy was evaluated after 3-6 courses of treatment according to the criteria of the International Working Group (IWG) 2006 revision. When complete or partial remission was obtained, the dose of lenolidomide was reduced to the minimum that could maintain remission.

Determination of the concentration of vascular endothelial growth factor (VEGF) in the blood serum of patients was carried out by the method of solid-phase immunoenzymatic analysis before therapy and after evaluating the response to treatment.

Results:

An overall positive response (complete and partial remission, as well as BM remission) in patients with MDS RAEB I, who were treated with lenalidomide, was achieved in 8 (21.6%) patients. In the BM of this group of patients, the number of blasts decreased by 1.4 times (5.2 ± 0.5%) compared to the indicator before treatment (7.5 ± 5.3%) ($p \leq 0.05$). The concentration of VEGF before treatment was 66.5 ± 18.7 pg/ml, after achieving remission — 43.5 ± 15.5 pg/ml ($p \leq 0.05$).

In the group of patients with stabilization of the pathological process - 16 people (43.2%) as a result of the course of treatment with an immunomodulatory drug, the number of blasts in the BM decreased by 1.2 times - before treatment (7.5 ± 5.3%) after - (7, 1 ± 2.5%) ($p \leq 0.05$). At the same time, there was a tendency to decrease the concentration of VEGF in blood serum by 1.25 times ($p \leq 0.05$). The general condition of the patients improved somewhat, the dependence on blood transfusions decreased in 9 patients.

In a group of 13 patients (35.1%), in whom the process of progression of MDS occurred, deepening of anemia, thrombocytopenia, and increased transfusion dependence were observed. The percentage of blast cells in BM

increased 2.0 times (7.5 ± 5.3% before treatment and 15.5 ± 6.5% after) ($p \leq 0.05$). The concentration of VEGF pg/ml in blood serum increased to 108.4 ± 33.5 pg/ml, which is 1.69 times more than the initial values ($p \leq 0.05$).

Summary/Conclusion: Therefore, the results of the conducted research provide a reason to establish a relationship between the level of VEGF content in the blood serum of patients with MDS RAEB I and the response to immunomodulatory therapy.

Keywords: Myelodysplastic syndrome