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CELL TECHNOLOGIES IN HEMATOLOGY AS THE METHOD OF NEUTROPENIA TREATMENT

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Neutropenia is one of the cytotoxic chemotherapy complications in patients with hematologic malignancies, which may lead to death. Among specific drugs, selectively destroying growing cells are myelotoxic chemotherapeutic drugs. They commonly cause neutropenia because of the high proliferative activity of neutrophil precursors in the marrow and short half-life of neutrophils in the blood.

Chemotherapy predisposes patients with malignancies to infections by suppressing the production of neutrophils.When the level of neutrophils is low, they can't kill all bacteria and thus it predisposes to the infectious complications. Neutropenia, particularly severe neutropenia, increases susceptibility to bacterial or fungal infections and impairs the resolution of these infections.

Other factors, such as the integrity of the skin and mucous membranes, the vascular supply to tissues, and the nutritional status of the patient, also influence the risk of infections.

There are three groups of drugs which can be used in the profylaxis of infections: antibacterial (for example, fluoroquinolones), antiviral (such as acyclovir and ganciclovir) and antifungal (fluconazole, itraconazole and posaconazole).

Making the attempts to solve the problem antibiotic therapy was also introduced.

The objective of the present report was to review the publications about cell technologies in Hematology during chemotherapy-induced neutropenia and assess the effectiveness of the applied methods of diagnosis and treatment.

To achieve the goal comparative analysis of the scientific articles on the topic concerning cell technologies in hematology using antibacterial, antifungal and antiviral drugs was performed.

On the basis of the obtained information we came to the conclusion that the existing methods do not meet the requirements of successful treatment of the above pathology.

Hence, further development of diagnostic techniques and treatment protocols require deeper scientific knowledge and new, more reliable methods of evidence-based medicine for management of patients with neutropenia, genetic, immune, haematological and oncological diseases.

Hence, neutropenia remains a prevalent problem associated with substantial morbidity, mortality and costs.