

Advances in treatment of Non-Hodgkin Lymphomas in pediatric patients

Shimae Nafarzadeh

Babol University of Medical Sciences, Iran

Non-Hodgkin Lymphoma (NHL) is a diverse group of lymphomatous tumors which have been classified in more than 50 different types by WHO. Burkitt lymphoma, diffuse large B-cell lymphoma and lymphoblastic lymphoma are the most prevalent types of NHLs in pediatric patients. The incidence of NHLs has increased over time and today they account for almost 3% of all cancer-related deaths among children, adolescents and young adults. Treatment of NHLs relied mainly on cytotoxic chemotherapies, with or without adjuvant radiotherapy until the end of 20th century. An improved understanding of interaction and cooperation between tumor cells and their microenvironment, and our increased insights into the molecular biology of NHLs have contributed to the modern therapies in recent years. Targeted therapies which use monoclonal antibodies to detect malignant cell surface antigens and the concept of using the host immune system by enhancing T-cells cytotoxic activity to fight and destroy cancer cells have changed therapeutic landscape of NHLs. Chimeric Antigen Receptor (CAR) T-cell therapy is a way to get T cells express receptors to help them recognize and attach to the specific cancer cell antigens. This treatment method results in on-target cytotoxicity with minimal off-target effect, although the treatment outcome can be influenced by tumor subtype, patient factors such as inherited immunodeficiency factors and psychosocial challenges. Anti-CD19 CAR T-cell therapy has showed good response in pediatric leukemia and positive results in NHLs in adults, but it has not been examined widely in the pediatric NHLs. Therefore, further research and clinical trials are needed to evaluate the safety and efficacy of CAR T-cell therapy in pediatric patients with NHLs.

Biography

Shimae Nafarzadeh, MSc degree in Oral and Maxillofacial Pathology, has her expertise in teaching Pathology, conducting researches, supervising doctorate thesis and treating pediatric patients and adults with oral lesions. In her researches she focuses more on diagnostic tools for early detection of tumors and on the new treatment methods with little to no adverse effects.

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