

Molecular and Pathomorphological Mechanisms of Breast Cancer Metastasis:**Analysis of Processes and Prevention Methods****Zaidova Dilobar Raimjanovna****Central Polyclinic of Chilanzar District Medical Association****Oncologist****Scientific Supervisor: Alimkhajeva Lola Telmonovna****Professor, Senior Oncologist-Mammologist****Republican Specialized Scientific-Practical Center of Oncology and Radiology****ABSTRACT**

A thorough understanding of the molecular and pathomorphological mechanisms of BC metastasis is essential for developing preventive and therapeutic strategies. Targeting metastasis processes through novel treatment methods can significantly improve patients' quality of life.

Keywords: Breast cancer, metastasis, epithelial-mesenchymal transition, angiogenesis, molecular mechanisms, pathomorphology.

Introduction

Breast cancer (BC) is one of the most common tumor types among women, and its most life-threatening aspect is metastasis. Metastatic processes are closely related to molecular and pathomorphological mechanisms, and understanding these mechanisms is crucial for effective treatment and prevention strategies.

Methods

This study analyzed recent scientific research focusing on the molecular mechanisms of BC metastasis. Key attention was given to processes such as epithelial-mesenchymal transition (EMT), angiogenesis, disruption of cell adhesion, and spread to lymph nodes. Pathomorphological aspects such as micrometastasis and its appearance in organs, as well as the stages of tumor spread, were also examined.

Results

The molecular basis of metastasis, including EMT and angiogenesis, were identified as critical mechanisms that enable tumor cells to exit the primary site and settle in new tissues. Pathomorphological studies demonstrated that metastasis frequently occurs in lymph nodes and organs like bones, lungs, and liver. Micrometastasis accelerates the progression of cancer and complicates the course of the disease.

Discussion

A deeper analysis of metastasis mechanisms plays a crucial role in early detection and prevention. Molecularly targeted therapies, immunotherapy, and novel biomarkers offer potential to halt the metastatic process. Controlling angiogenesis and EMT mechanisms in cancer cell dissemination could prevent further tumor spread.

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