MECHANISMS OF BONE METASTASIS OF MALIGNANCIES OF THE GENITO-MAMMARY AREA

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Bone metastasis is a frequent complication of advanced genito-mammary cancer patients. Skeletal involvement is particularly common in breast cancer. Bone metastases induce a wide range of symptoms, lowering the quality of life and shortening survival. The normal bone remodeling process is deeply affected in all types of metastases: osteolytic, osteoblastic, and mixed. The main mechanisms involved in bone metastatic dissemination are the expression of adhesion tumor molecules and corresponding receptors within bone marrow and bone matrix cells; local growth factors, molecular mechanisms of remodeling the hematopoietic stem cell activity, and alteration of the expression of the post-transcriptional regulatory microRNAs of the gene expression are the new theories developed from recent studies.

Abnormalities in the number of copies of the 16q23 gene explain the increased risk of bone metastasis of breast cancer compared to its dissemination to the other organs; the mutual interaction between tumor cells and the bone microenvironment constitutes the element that stimulates both bone destruction and tumor development. Endothelin -1, bone morphogenic proteins, platelet-derived growth factor, Wnt proteins stimulate proliferation and osteoblastic activity. Genomic and proteomic studies underlie the development of new therapeutic agents for the treatment and prevention of bone metastases.
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