regression between target variable – BMD vs Serum Estrogen & Melatonin (Control and Osteopenic) are shown. We built a multiple linear regression polynomial model to understand the correlation and effects of the level of Serum Estrogen and Melatonin on Bone Mineral Density. On calculations**,** the correlation factor was found to be positive (r) 0.92, which indicates that both the factors (Estrogen and Melatonin) have a direct strong linear relation with BMD. While its graph was plotted, the goodness of fit (r^2) of the graph was found to be 0.8485 (roundabout 85%), indicating strong positive results. For Osteopenic subjects, the correlation factor (r) was on the higher positive end, 0.8959, and the goodness of fit (r2) of the graph was 0.802. Thus, the above results clearly show whether a patient falling under BMD controlled group or Osteopenia affected group possesses strong positive multiple linear relations between them. Melatonin can be used as a substitute for hormone replacement therapy for the treatment of osteoporosis and osteopenia as Estrogen usage possesses many undesired side effects. [3]

Conclusions. Thus, the findings in our study prove that Melatonin can influence bone mineral density and has a strong correlation with it. It can serve as a potential substitute for Estrogen replacement therapy for osteoporosis and osteopenia and help mitigate side-effects related to Estrogen administration.

ЛИТЕРАТУРА

1. Manolagas, S. C. Birth and death of bone cells: basic regulatory mechanisms and implications for the pathogenesis and treatment of osteoporosis / S. C. Manolagas // Endocr Rev – 2020. – 21. – P. 115–137.

2. Sadadiwala, M.H. Effects of melatonin on bone: a case control study / M. H. Sadadiwala, A. Sadadiwala // Int J Res Med Sci. – 2022. –10. – P. 1703-1709.

3. Prospective study of estrogen replacement therapy and risk of breast cancer in postmenopausal women / G. A. Colditz [et al.] // JAMA. – 1990. – 264. – P. 2648–2653.

EXPRESSION OF HER-2/NEU IN BREAST CANCER IN RESIDENTS OF THE GRODNO REGION

Samarasinghe Ridma Thathsarani

Grodno state medical university

Научный руководитель: Associate Professor, Shulga A. V.

Relevance. The HER-2/neu (c-erbB-2) oncogene encodes a 185-kda transmembrane protein, which is overexpressed in 15% to 30% of invasive breast carcinomas. Since 1987, when Slamon et al. [1,2] first reported a significant relationship between amplification of the HER-2/neu oncogene and poor clinical

outcome in breast cancer patients, numerous studies have examined the utility of HER-2/neu as a prognostic factor.

Her-2/neu (c-erbB-2) is a member of the family of tyrosine kinase receptors, consisting of 4 functionally interconnected receptor molecules that play an important role in cell proliferation, apoptosis and differentiation, as well as affecting the operation of a number of signaling cascades. Currently, the determination of HER-2 status is widely used in breast cancer, where the overexpression of this marker is determined using an immunohistochemical (IHC) method and, if present (score 3+), monoclonal antibodies (trastuzamab) are successfully used for treatment. With an uncertain HER-2 status (score 2+), studies are required to detect the presence of gene amplification: chromogenic in situ hybridization of the gene (CISH) or an expensive, but more sensitive method, fluorescent in situ hybridization (FISH).

Object. The aim of the study was to evaluate the expression of c-ErbB-2 in breast cancer in residents of the Grodno region in 2014-2016.

Research methods. The material for the study was 1,475 cases of breast cancer detected in women of the Grodno region in 2014-2016. The results of morphological studies are analyzed, with a revision of hematoxylin and eosin slides. IHC was performed according to the standard procedure using polyclonal antibodies to c-erbB-2 (A 0485). The membrane expression of c-erbB-2 was calculated according to the generally accepted Herceptest scoring system™ (0, 1+, 2+, 3+).

Results and discussion. When analyzing the data obtained, it was found that during this period there was a relative increase in the IHC studies conducted to detect the expression of c-erbB-2: 414 cases – 2014, 498 – 2015 and 563 cases in 2016. A positive reaction with antibodies was detected in 865 (58.6%) cases of breast cancer. Hyperexpression (score 3+) was detected in 278 cases: 101 cases in 2014, 73 in 2015 and 104 cases in 2016. Score 2+ was detected in 101 cases: 26 cases in 2014, 47 in 2015 and 104 in 2016.

Conclusions. The overexpression of c-erbB-2 in the tumor tissue of breast cancer patients, in which targeted therapy is prescribed, in the studied group was 18.9%. In 7% of the observations, there was a need for additional studies revealing the presence of gene amplification (CISH, FISH).

ЛИТЕРАТУРА

1. Human breast cancer: Correlation of relapse and survival with amplification of the HER-2/neu oncogene / D. J. Slamon [et al.]// Science. – 1987. – 235 (4785). – P. 177-182.

2. Specificity of HercepTest in determining HER-2/neu status of breast can-cers using the United States Food and Drug Administration-Approved Scoring System / W. Timothy [et al.] // J. Clin. Oncol. – 1999. – Vol. 17, № 11. – P. 1983–1987.