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Temat: „*Ocena ekspresji HER2 w odniesieniu do wybranych czynników klinicznych i morfologicznych w raku żołądka*”

Summary

Introduction: HER2 is a protein widely expressed in all kinds of tissue. In response to extracellular ligand, it regulates process of differentiation, migration, proliferation, adhesion and apoptosis. These processes are essential for the proper growth and differentiation of tissue. HER2 attracted attention recently as a biomarker of the efficacy of trastuzumab based therapy. The frequency of HER2 expression in gastric cancer varies considerably between studies. Also, the prognostic value of HER2 remains controversial.

Aim: The aim of the study was to evaluate the frequency of HER2 expression in gastric cancer and the association between HER2 expression and clinicopathologic parameters in gastric cancer in patients from Podlasie district.

Material and methods: Seventy two patients who underwent gastrectomy from 2011-2014 were included in this study. The expression of HER2 was evaluated in tissue specimen by immunohistochemical staining. The correlation were done between HER2 expression and clinicopathologic factors.

Results: The rate of HER2 expression IHC+3 was 6,49% (5 cases). HER2 equivocal IHC+2 was detected in 14 cases (19,44%). Negative score was detected in 53cases (73,61%). No statistically significant difference was found between tumor types according to Lauren's classification and HER2 expression ($p>0,05$). However, we observed that HER2 expression was most common in intestinal type. In terms of tumor location and HER2 expression HER2 IHC+3 score was the most prevalent in distal location- 3 patients (8,33%), an equivocal score was the most common in cancer covering entire stomach -8 cases (28,57%) and the highest rates of negative cases (HER2 1+/-) was in proximal location-25 cases (77,27%). There was no statistical significance ($p>0,05$). No significant differences were found between pT, N and M factors respectively. However, we found some dependencies. HER2 expression was correlated with low depth of tumor invasion. In T2 positivity rates HER2 IHC +3 and equivocal rates HER2 IHC+2 were 22,22%. The equivocal score was the most prevalent- 40% in T1. The negativity rates HER2 IHC0/+1 were highest -80% in T4. We observed that HER2 expression was associated with lymph node metastases. HER2 IHC+3 score was most common-33,33% among the lymph node status classified as distant metastases and less common among N0 and N1metastases- 71,43% and 85,71% of negativity rates. The expression of HER2 IHC +3 was more prevalent in patients with distant metastases 16,67% vs 5%. The equivocal HER 2 IHC+2 score was noted in 20% of patients with without metastases and in 16,67% of patients with metastases. The negativity rates was higher -75% in

patients without metastases. There was no statistical correlation between different histological types according to WHO classifications ($p>0,05$). However, we did not observed HER2 IHC+3 expression in ringcells, poorly differentiated and mixed types of carcinomas. The highest rates of HER2 IHC+2 and HER2 IHC+3 were in tubular and polory cohesive types of gastrin cancer, respectivly: 4,55%, 25% and 16,67% , 16,67%.

The albumin level and protein level was insignificantly higher in negative scores: respectively 6,1vs 6,0 and 3,2 vs 3,1.

Conclusions: Intestinal type is independent factor related to HER2 expression. However, we did not determined statistically significant association between HER2 status and the histological type, tumor location, depth of tumor invasion, lymph node involvement , the distant metastasis or the clinical symptoms. HER2 is not valuable as independent prognostic factor of gastric cancer disease ,but as a biomarker of the efficacy of trastuzumab based therapy. HER2 expression in patients from Podlasie district was, however significantly lower comparing to other populations examined, so most of them are not suitable candidates for biological therapy.