Introduction: To improve the efficacy of the treatment of gastric cancer by developing new regimens of chemotherapy, including molecular markers sensitivity and resistance to cytostatics and hormonal status.

Methods: There were analyzed clinical data of 18 patients with locally advanced gastric cancer with counting of molecular and immunohistochemical prognostic factors who were treated in the department of chemotherapy, National Research Center of Oncology in 2012 - 2013. Men and women were 7 - 11. In the allocation of patients by age decades there found that the peak incidence occurs in the period from 41 to 50 years. In our patients among all sites dominated total defeat of the stomach - 44.5%. Stage IIIA gastric cancer (T4N0M0) was detected in 1 patient (5.6%), stage IIIB (T4N1M0) - in 1 (5.6%) and stage IV T4N2M0 - in 6 (33.3%) and T4N3M0 in 10 (55.5%) patients. Adenocarcinoma was verified in all patients: high-grade - in 1 (5.5%) patients, moderately differentiated - in 3 (16.7%), low-grade - in 10 (55.6%), undifferentiated carcinoma was detected in 4 (22.2%).

Results: Analysis of BRCA1 and TOP2A expression as predictive markers of sensitivity and resistance to chemotherapy performed in all 18 patients with locally advanced gastric cancer. High expression of BRCA1 and TOP2A was detected in 6 and 7 patients respectively. Low expression of these markers found 12 and 11 patients, respectively. TOP2A gene mutations were found in 7 patients, but in the anamnesis of these patients family history of gastric cancer were not detected. It was shown that in 9 patients with gastric cancer prevailed negative receptor status of estrogen, and 9 - positive. In 15 patients with gastric cancer was dominated negative receptor status of progesterone, and 3 - positive. Of 18 patients in 12 (66.7%) were hormone-sensitive form of gastric cancer who underwent chemotherapy by DCF + Tamoxifen regimen. In the remaining six (32.3%) patients there were found hormone-negative form of gastric cancer who underwent chemotherapy by DCF regimen without Tamoxifen. After the treatment in 9 (50%) from 18 patients there was revealed partial tumor regression, in 6 (38.8%) - stabilization and in 3 (11.2%) had progression of the process. There is planning to continue treatment to all patients of the main group by protocol.

Conclusion: These data show pronounced heterogeneity of molecular markers expression in locally advanced gastric cancer patients, which means biological heterogeneity of tumors with different sensitivity to drug therapy. Introduction of new chemotherapy regimens in clinical practice leads to the improving the results of treatment of both resectable and metastatic gastric cancer. In the selection of treatment should focus on the individual characteristics of patients and immunohistochemical features of tumor.

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