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**CLINICAL AND LABORATORY PROGNOSTIC FACTORS OF TOXICITY OF BREAST CANCER CHEMOTHERAPY**

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**Aim:** Modern chemotherapy (CT) regimens in patients with breast cancer allow reaching high treatment efficacy. The intensification of CT leads to the elevation of toxicity levels, which cause decrease of intensity of CT. This could reduce the level of response rate. The prognosis of toxicity will help to prevent and treat in proper time CT complication and thus to preserve the treatment efficacy.

**Methods:** 146 patients with breast cancer, received 4-6 cycles of CT with FAC regimen. The complex of clinical, laboratory and instrumental investigations was performed to the patients from this group. The main evaluated toxicity types were hematological, gastrointestinal (GIT), liver and cardiovascular toxicity (CVT).

**Results:**

- GIT was more common in patients aged less than 50 years old (100% vs 66% in patients older 50 years old, \(p<0.001\)).
- CVT was more common in patients aged older 50 years old (90% vs 16% in patients aged less than 50 years old, \(p<0.001\)).
- Liver toxicity was observed in 26% of patients with I-II stages vs 77% of patients with III-IV stages, CVT was observed in 42% vs 84% of patients, respectively, \(p<0.001\).
- Liver toxicity developed in 21% of patients with comorbidities vs 77% of earlier healthy patients, CVT developed in 41% vs 74% of patients, respectively, \(p<0.001\).
- GIT was observed in 100% of patients treated with less than 3 cycles of CT vs 87% of patients treated with 3 and more cycles of CT, respectively, \(p<0.001\). CVT developed in 44% vs 79% of patients, respectively, \(p<0.001\).
- The 88.9% of patients the bearers of G/G genotype of GSTP1 gene had signs of GIT vs 41.9% among bearers of A/G genotype and 46.9% among bearers of A/A genotype, \(p<0.04\). Hematological and CVT were dependent on the genotype of MTHFR gene.
- Hematological toxicity was more common in patients with C/T genotype (20%) vs patients C/C (3 patients) and T/T genotype (no cases), \(p<0.04\). CVT was observed in 36.5% patients with T/T and C/T genotype vs 9.1% of patients with C/C genotype, \(p<0.01\).

**Conclusions:** The most important prognostic factors of CT toxicity were age, comorbidities, disease stage, number of received CT cycles, and polymorphism of GSTP1 and MTHFR genes. The genes’ polymorphism could be useful tool in prognosis of CT toxicity.

**Disclosure:** All authors have declared no conflicts of interest.

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