Changes in tumour biological markers during primary systemic chemotherapy (PST)

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Background: The influence of primary systemic therapy (PST) on the expression of relevant therapeutic markers is still under investigation. Patients and Methods: Corresponding "baseline" biopsies and post-chemotherapy surgical specimens from 87 patients treated with neoadjuvant anthracycline- or taxane-based chemotherapy were analysed for the expression of the oestrogen receptor (ER), the progesterone receptor (PR), the B-cell lymphoma protein 2 (Bcl-2), the v-erb-b2 erythroblastic leukemia viral oncogene homolog 2 (Her2/neu), the tumour protein p53 and the proliferation-related Ki-67 antigen.

Results: The pathological response rate was 70%. Twenty-three tumours (26%) changed hormone receptor classification after chemotherapy (7, ER; 16 PR). A significant change was also observed for Her2/neu status. Eleven tumours which were positive prior to PST down-regulated Her2/neu after chemotherapy. The median Ki-67 index decreased from 30% before to 13% after treatment (p<0.01). Minor changes were observed in the expression of Bcl-2 and p53 (9%). Only the reduction of Ki-67 was associated with pathological response to PST. Conclusion: Her2/neu status as well as ER and PR status should be re-evaluated on post-chemotherapy surgical specimens since changes can be observed.

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