Strategies emerge for chemotherapy de-escalation in early breast cancer

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Reviewing the history of breast cancer adjuvant chemotherapy, the pivotal regimen was CMF (cyclophosphamide, methotrexate, and fluorouracil). Then, after the discovery of more potent anthracyclines, soon, the shorter course of AC (doxorubicin, cyclophosphamide) was shown to be equivalent to longer course of CMF. And during the years of primarily chemotherapy, we usually adopted the add-on strategy once a new cytotoxic agent was invented. Therefore, when we think of taxanes in adjuvant chemotherapy, the stereotype impression would be 3rd generation regimen of anthracycline plus taxane.

Later, we have HER2-targeted therapies as one of the armamentariums, and trastuzumab has fundamentally changed the treatment outcome and landscape in treating HER2(+) patients. With the tremendous benefit of anti-HER2 agents, we started to evaluate the possibilities of de-escalating chemotherapies, with a focus on whether we can omit anthracyclines. Although the efficacy of anthracycline is robust, the issue of cardiotoxicity and risk of secondary hematological malignancies is always a concern. Through the years, now we know that, with the combination of effective anti-HER2 antibodies, anthracycline –free regimens had demonstrated similar treatment effect and are considered appropriate for most patients.

Also, for the ER(+)/HER2(-) subtypes, we've learned that biology is the key, and through the genomic testing and/or clinicopathological parameters, we can better evaluate the risk of recurrence for patients. For low risk patients, endocrine therapy alone is good enough; for most intermediate risk patients, anthracycline-free adjuvant chemotherapy had shown good disease free survival outcome; and we can leave the anthracycline-taxane combination to high risk patients.