New strategic approach of neoadjuvant in early breast cancer

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Early breast cancer can be cured by surgery and neo-/adjuvant therapy, usually with anthracycline- and/or taxane-based combinations. However, despite these therapies, a proportion of patients eventually experience relapse and die. Hence, more effective therapeutic options are desired in order to prolong relapse intervals and survival times for breast cancer patients.

While anthracycline and/or taxane are key components of chemotherapy regimens for early breast cancer patients, they are associated with a burden of acute and chronic toxicities which lead to treatment delay, reduction, and interruption. With the goal of treatment optimization, it is necessary to stratify the risk and develop escalated and de-escalated therapy. Optimal chemotherapy regimens with more convenient dosing schedules, better tolerability, and fewer side effects for patients.

The liposomal-encapsulated characteristics of pegylated liposomal doxorubicin (PLD) are advantageous which it offers a reduction in chemotherapy-related toxicity while maintaining antitumor efficacy, notably because the toxicity profile of PLD demonstrates lower cardiotoxicity, alopecia, nausea, and vomiting allows for wider usage in breast cancer therapies. Although PLD chemotherapeutic agents have been proven to obtain warranted treatment effects for breast cancer in metastatic settings, reports on PLD efficacy in neoadjuvant settings for early breast cancer patients were limited in the past.

A Taiwanese, multi-center, retrospectively neoadjuvant study was conducted to evaluate the pathological complete response (pCR) rate between two regimens, pegylated liposomal doxorubicin-based and epirubicin-based combination therapy regimen (LC-T vs. EC-T, both with cyclophosphamide followed by docetaxel with/without anti-Her2 target therapy), in stage I to III breast cancer patients. The results showed that pCR rate were significantly greater in the LC-T group compared with the EC-T group. Analysis by molecular subtype showed that compared with EC-T treatment, LC-T treatment achieved a significantly greater pCR rate in the triple-negative subtype Her2(+) subtype.

Recently, sufficient clinical evidence was reported demonstrating the feasibility of PLD in early breast cancer treatment. Neoadjuvant PLD-based therapy may be a potential option for patients with early-stage breast cancer.