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Does the Sequence of Anthracycline and Taxane Matter in Chemotherapy of Early Breast Cancer?

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Studies and guidelines have shown both taxanes and anthracycline should be used in the treatment for breast cancer across subtypes however the sequential treatment of anthracycline first or taxane first is unclear in terms of efficacy, side effects and deciding factors.

Almost no clinical trials have shown disadvantages in terms of efficacy or toxicity for sequences in which the taxane was administered first. Moreover, in the setting of some studies, taxanes are received before anthracyclines could improve pCR in standard neoadjuvant chemotherapy for breast cancer. Given the available information, there seems to be sufficient evidence to suggest that a taxane followed by an anthracycline is a sequence option that can be incorporated into daily clinical practice.

Some studies showed that sequential Anthracycline first was associated with an increased risk of toxicities and no survival benefit when compared to Taxane first. In a small phase II randomized study, more neutropenia was reported when anthracycline was the first; however, neurotoxicity was more frequent while taxane was the first regimen. In the Cochrane systemic review, there were no significant differences in terms of pCR, disease-free survival or overall survival rate but a significant reduction in Grade 3/4 neutropenia was demonstrated while taxane first. Furthermore, some studies found that higher relative dose intensity was also in the taxane-first population which conducted better drug concentration and duration in patients.

The literature review revealed that administering taxanes as the first-line chemotherapy in early breast cancer (EBC) yielded comparable efficacy, improved relative dose intensity (RDI), and reduced adverse events. Additionally, a retrospective analysis based on the experience at CGMH reported a superior clinical ultrasound response with the taxane-first regimen in neoadjuvant chemotherapy for TNBC.