

# Trastuzumab treatment need not delay breast reconstruction following mastectomy

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Treatment with trastuzumab (Herceptin/Genentech) of breast cancers that express the HER-2 protein does not increase the risk for complications at the surgical site for women who undergo immediate breast reconstruction after mastectomy. The first study to assess the effect of trastuzumab on surgical wound complications indicates that breast reconstruction need not be delayed because of the type or length of this form of adjuvant therapy. (Adjuvant therapy is treatment that is given in addition to the primary or main form of treatment to maximize effectiveness.) Study results appear as an "article in press" on the *Journal of the American College of Surgeons* website in advance of print.

However, combination therapy involving [trastuzumab](#) and pertuzumab (Perjeta/Genentech) may carry an increased risk for wound complications after immediate [breast reconstruction](#). Therefore, authors of the study advise surgeons and [patients](#) to consider delaying breast [reconstruction](#) in otherwise high-risk patients until completion of the full course of treatment if pertuzumab is added to the neoadjuvant regimen. "If a patient is otherwise fairly healthy and the surgery is straightforward, immediate breast reconstruction may be done even if she is receiving both therapies. If a patient has other risk factors and faces a potentially difficult operation, I would recommend waiting until the completion of pertuzumab therapy," said Scott Hollenbeck, MD, FACS, principal author of the study and a plastic and reconstructive surgeon at Duke University Medical Center, Durham, N.C.

Twenty percent of invasive breast cancers have tumors that express the

growth factor protein HER-2. These tumors tend to grow and spread more rapidly than other forms of breast cancer.<sup>1</sup>

Trastuzumab is a monoclonal antibody that targets the HER-2 protein. When given in conjunction with conventional chemotherapy, trastuzumab has increased overall survival, 10-year survival, and disease-free survival of patients with HER-2+ [breast cancer](#).<sup>1</sup>

Pertuzumab is also used in the treatment of HER-2+ breast tumors. The monoclonal antibody was approved in 2012 for combination therapy with trastuzumab to treat the small number of patients with HER-2-expressing tumors that have metastasized, were larger than 2 cm, involved lymph nodes, or were inflammatory or locally advanced. The addition of pertuzumab to trastuzumab and chemotherapy has prolonged survival for patients with metastatic disease.<sup>2</sup>

The concern for surgeons who perform breast reconstruction after mastectomy is whether suppression of the HER-2 protein affects the integrity of the skin and therefore increases a patient's susceptibility for wound infection or breakdown at the [surgical site](#). "During surgical reconstruction of the breast after mastectomy, the skin is saved and an implant or flap is inserted underneath. If the skin doesn't heal or dies, the reconstruction could fail and require another operation. Trastuzumab and pertuzumab block the action of HER-2, which is associated with the epidermis or outer layer of the skin. Up to now, there haven't been any studies of the outcomes after breast reconstruction in patients who received these agents. We conducted this study to determine whether trastuzumab alone or in combination with pertuzumab negatively affected breast reconstruction outcomes," Dr. Hollenbeck said.

Investigators at Duke University identified all patients who had breast reconstruction after mastectomy between 2006 and 2016. Of the total of 481 women, the researchers compared outcomes in two matched groups

of 107 patients. One group received trastuzumab with or without pertuzumab; the other did not. Patients were matched by age, obesity, diabetes, tobacco use, and type of oncologic treatment regimen.

Overall, the rate of wound breakdown that required a return to surgery for treatment was higher in patients who received both trastuzumab and [pertuzumab](#). The use of trastuzumab alone was not associated with any complication at the surgical site, including bleeding, swelling, coagulation or clotting, disruption of the layers of skin around the surgical incision, or cellular death in the mastectomy skin flap.

"At the present time, there are no clear clinical guidelines on the optimal timing for breast reconstruction. While preliminary, this study may be helpful for guiding the decision by patients and surgeons," Dr. Hollenbeck said.

Findings from the study need to be validated in larger, prospective studies. Until then, the study results "may help surgeons feel more comfortable performing immediate [breast](#) reconstruction on patients who receive trastuzumab and delaying the surgery for those on combination targeted HER-2 treatment," he concluded.

**More information:** Ronnie L. Shamma et al. Association Between Targeted HER-2 Therapy and Breast Reconstruction Outcomes: A Propensity Score-Matched Analysis, *Journal of the American College of Surgeons* (2017). [DOI: 10.1016/j.jamcollsurg.2017.08.023](https://doi.org/10.1016/j.jamcollsurg.2017.08.023)

<sup>1</sup> Perez EA et al. Trastuzumab plus adjuvant chemotherapy for human EGF receptor 2 positive breast cancer: Planned joint analysis of overall survival from HSABP B-31 and NCCTG N 9831. *J Clin Oncol*, 32 (33), Nov 2014; 3744-3752.

<sup>2</sup> Swain SMS et al. Pertuzumab, trastuzumab, and docetaxel in HER

2-positive metastasis breast cancer. N Engl J Med 2015 Feb 19; 372 (8): 724-34.

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