

# **DIRECT-TO-IMPLANT VERSUS TWO-STAGED EXPANDER-IMPLANT RECONSTRUCTION: COMPARISON OF RISKS AND PATIENT-REPORT OUTCOMES FROM A PROSPECTIVE, MULTI-CENTER STUDY**

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### **Author Contribution**

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## BACKGROUND

Although direct-to-implant (DTI) breast reconstruction offers potential logistical and aesthetic advantages over other implant-based techniques, its use remains limited, in part due to reports of high complication rates.<sup>1-3</sup> Multicenter prospective studies assessing complications and patient-reported outcomes (PROs) of these procedures remain largely lacking. This study's aim is to compare one-year complications and PROs for DTI versus expander/implant (TE) procedures in immediate breast reconstruction.

## METHODS

Patients undergoing immediate DTI or TE reconstruction were enrolled in the 11-center Mastectomy Reconstruction Outcomes Consortium (MROC) Study. In addition to demographic and clinical data, complications (defined as “major” and “all” complications), and PROs (using the BREAST-Q) were evaluated postoperatively at one year. Mixed-effects regression models adjusting for baseline demographic and clinical differences were used.

## RESULTS

Of 1627 eligible patients, there were 106 DTI and 1521 TE procedures. For indications, DTI was more commonly performed for prophylactic ( $p<0.0001$ ) and nipple sparing ( $p<0.0001$ ) mastectomies compared to TE procedures. Radiation therapy ( $p=0.01$ ), adjuvant chemotherapy ( $p<0.0001$ ), and axillary dissection ( $p<0.0001$ ) were more common in the TE cohort. Compared to TE patients exchanged within ten months of the initial procedure, DTI reconstruction was associated with significantly higher risk of major complications (21.7% versus 11.6% unadjusted, adjusted OR = 1.9,  $p=0.03$ ). For all complications, DTI versus TE differences were not significantly different (27.4% versus 19.2% unadjusted, adjusted OR=1.4,  $p=0.17$ ). Comparing DTI and TE patients exchanged by one year, there were no significant differences in

breast satisfaction or psychosocial and sexual well-being. Among all immediate TE patients, 268 (17.6%) had not undergone exchange by the end of year one. There were significantly higher odds of any ( $p<0.01$ ) and major complications ( $p<0.01$ ) in this subgroup, compared with those exchanged within ten months. Patients awaiting exchange at one year also reported significantly lower satisfaction with breast ( $p<0.001$ ), psychosocial well-being ( $p=0.02$ ), and physical well-being ( $p=0.02$ ).

## CONCLUSION

Although DTI reconstruction was associated with a significantly higher risk for major complications, this approach produced equivalent patient satisfaction and well-being at one year postoperatively, compared with expander/implant procedures. Among TE patients, delays in exchange at one year were associated with lower PRO scores. Despite its risks, DTI reconstruction appears to provide comparable patient satisfaction and well-being, while avoiding the necessity of a second operation and the potential for delays in expander exchange.

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