PURPOSE: Many women undergoing immediate breast reconstruction also require pre or post-operative chemotherapy for cancer treatment. The effects of chemotherapy on breast reconstruction outcomes have not been well described. We evaluated the impact of neoadjuvant and adjuvant chemotherapies on complications and patient-reported outcomes (PROs) in immediate reconstruction.

METHODS: The MROC Study prospectively assessed complications and PROs in patients undergoing immediate implant-based or autologous reconstruction at 11 centers from 2012 to 2015. Complications (total and major), and PROs (satisfaction, and physical, psychosocial and sexual well-being) were evaluated two years postoperatively, using medical records and the BREAST-Q, respectively. Mixed models compared outcomes across cohorts receiving neoadjuvant, adjuvant or no chemotherapy, controlling for clinical covariates and sites.

RESULTS: Among 1881 patients, 10.6% received neoadjuvant, 35.5% adjuvant, and 53.9% no chemotherapy. Procedures included implant-based (73%) and autologous reconstructions (27%). Significant cohort differences were noted for age, laterality, lymph node management, mastectomy type, and timing of radiation. Although chemotherapy had no significant effects on complication rates for autologous reconstructions, a higher risk of major complications was seen in implant patients with adjuvant chemotherapy compared to no chemotherapy (OR 1.42, p=0.05). With the exception of sexual well-being, for which adjuvant chemotherapy was associated with significantly lower scores in implant patients (p <0.01), there were no significant chemotherapy effects on PROs.

CONCLUSION: While the effects of chemotherapy on complications in immediate breast reconstruction appeared to vary by chemotherapy timing and procedure type, chemotherapy had little impact on PROs. These findings may prove useful in treatment planning and counseling for breast cancer patients.

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Amifostine Prophylaxis in Irradiated Breast Reconstruction: A Study of Oncologic Safety

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PURPOSE: Oncologic surgical planning has become increasingly collaborative in recent years, as breast surgeons and plastic surgeons partner to deliver the most optimal results from both oncologic and aesthetic perspectives. Radiation therapy (XRT) is a highly effective component of breast cancer treatment algorithms; however, patients often suffer from associated pernicious side effects resulting in delayed or compromised breast reconstruction. XRT has profoundly destructive short and long-term effects on skin, soft tissue, and surrounding vasculature. Thus, there is an extraordinary need for an effective, yet safe method of radiation injury prophylaxis. Amifostine (AMF) is one of only a few FDA approved prophylactic radio-protectants, however, it has not been widely adopted in the clinical setting. One reason for this is lingering uncertainty over whether AMF potentially protects cancer cells from XRT in addition to healthy cells. While the oncologic safety of AMF in the setting of head and neck cancer is well studied, it has yet to be investigated in the setting of breast cancer. The purpose of this study was to evaluate the oncologic safety of Amifostine and determine its effect on triple negative breast cancer in the setting of XRT.

METHODS: Two ER-/PR-/Her2- breast cancer cell lines, MDA-MB-231 and MDA-MB-468, and one healthy breast cell line, Female Fibroblasts (FF), were investigated. A standardization study was performed to identify appropriate doses of XRT and WR-1065. 25,000 MDA-MB-231 and MDA-MB-468 cells and 50,000 FF cells were seeded in 24-well plates. After 24 hours, WR-1065, the active metabolite of AMF, was added to experimental wells to achieve a final concentration of 0.25 mM. Untreated wells functioned as controls. Following a 20-minute exposure, cells were washed and media replaced. Immediately thereafter, a single dose of 0, 10, or 20 Gy XRT was administered. Live and dead cells were quantified 48 hours after XRT. Two sample t-test was performed to compare values between groups and two-tail p-values were determined.

RESULTS: Treatment with WR-1065 significantly reduced healthy FF cell death after XRT compared to untreated controls. While it does not eliminate healthy cell death, it demonstrated a significant radio-protective effect at both
Both MDA-MB-468 and MDA-MB-231 cells exhibited radio-sensitivity with substantial cell death at 10 and 20 Gy. Pretreatment with WR-1065 did not demonstrate cancer cell protection. Cancer cells retained their radio-sensitivity despite prophylactic treatment with WR-1065, as pretreated cells achieved the same degree of cell death as untreated cells.

CONCLUSIONS: Amifostine does not protect triple negative breast cancer cells from XRT. This study demonstrated its proficiency to selectively protect healthy cells from XRT, while cancer cells remained radiosensitive. These results not only support the oncologic safety of Amifostine, but also identify this drug as a highly effective prophylactic radioprotectant in the setting of breast cancer. Further investigation is now warranted to validate these findings in vivo.

CONCLUSION: Key components to success in providing transgender surgical care for uninsured patients include the requirement of a stable PCP for referrals and a Peer Navigator. Complication rates for chest and breast surgeries in this public health sample mirror those previously reported in the private population, and our preliminary satisfaction data confirms effective quality outcomes. Most remarkably, because patients referred through this program must establish stable social circumstance to qualify for surgery, we have seen an unprecedented improvement in functional societal roles as these motivated patients seek stable jobs, housing, and health maintenance. Further review is in progress to quantify the long term psychosocial benefits not only on an individual basis, but for society at large. Our program has established that public funding can effectively improve health disparities in uninsured transgender patients with notably low complications and very high patient satisfaction.