

Utilisation of Post-Treatment Rehabilitation for Patients with Early-Stage Breast Cancer

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Perspective

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ABOUT THE STUDY

Up to 50% of women treated with localised breast cancer will have arm or shoulder morbidity. While radiation is thought to play a role in this morbidity, the mechanism is unknown. Previous research has revealed biologic and radiological alterations in the pectoralis muscles following radiation. Many institutions did a retrospective, 1:1 matched case-control study on breast cancer patients who were and were not referred for breast or shoulder rehabilitation therapy between 2014 and 2019. Patients who received a lumpectomy and adjuvant radiotherapy were included. Patients who had an Axillary Lymph Node Dissection (ALND) were not eligible. Age, axillary surgery, and usage of radiation boost were used to match cohorts. Muscle dosages were translated to EQD2 and compared between groups using a / ratio of 2.5. In our group of 50 patients, the median age was 60 years (Interquartile Range (IQR) 53-68 years), and 36 (72%) had a Sentinel Lymph Node Biopsy (SLNB) in addition to a lumpectomy. While pectoralis muscle dosages were higher in those who received rehabilitation therapy, the difference was not statistically significant. Pectoralis major V20-40Gy and mean dosage (17.69Gy vs. 20.89Gy, $p=0.06$) were both borderline significant. We were unable to establish a definitive association between pectoralis muscle dosages and usage of rehabilitation services in this small group of individuals. Given the borderline significant results, this should be examined further in a larger population. Breast cancer is the most frequent type of cancer in women, with an annual incidence rate of 129 per 100,000 women because prognosis improves over time 2, survivability is becoming increasingly important.

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The detection and management of shoulder or arm morbidity, which affects up to 50% of women treated for breast cancer, is a crucial component of survivorship and is linked to a lower quality of life. Pain, limited range of motion, stiffness, fibrosis, lymphedema, and axillary web syndrome are all examples of shoulder morbidity while shoulder morbidity is less severe after Breast Conserving Therapy (BCT), which includes breast conserving surgery and radiation therapy rates are still as high as 30-50%.

The mechanism underlying shoulder morbidity following radiation is currently unknown. With 3D Conformal Radiation Therapy (3DCRT) for whole breast radiation, key shoulder muscles such as the pectoralis major, pectoralis minor, latissimus dorsi, and teres major get the highest doses of radiation. There are biologic and radiological observations in patients treated with radiation that imply radiation-induced alterations in the pectoralis muscles. These changes include increased inflammation and muscular atrophy, as well as decreased pectoralis muscle volume while previous research has found alterations in the pectoralis muscles following radiation, it is unclear if these findings translate into clinically important goals.

The current study offers data on referral patterns as well as information on arm and shoulder morbidity after radiotherapy at a large referral centre. The researchers discovered a connection between pectoralis major dosimetry and shoulder and arm morbidity. Continued attempts to understand the pathophysiology of shoulder damage following radiation could aid in radiation planning and early rehabilitation referrals, resulting in a higher quality of life for breast cancer survivors.