

OPBC-05: Surgical versus Conservative Therapy for Chronic Breast Cancer-Related Lymphedema (BCRL): A Pragmatic, Randomized, Multicenter Superiority Trial

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Background

Lymphedema is caused by lymphatic system failure that results in the stagnation of plasma protein molecules causing high-protein edema, which affects up to 250 million people worldwide. In breast cancer patients, the incidence of lymphedema ranges from roughly 5% after axillary node dissection to over 40% in those who have received radiotherapy.

Chronic breast cancer related lymphedema (BCRL) is a debilitating condition that causes physical and psychological morbidity, e.g., an affected arm, which may become swollen, heavy, and deformed, is painful and prone to infections. It can also pose a significant financial burden to patients and society.

To date, conservative complex physical decongestion therapy (CDT) is the gold-standard for BCRL and includes gentle massage, local compression garments, physical exercises, and meticulous skin care. It is, however, too often ineffective, and purely symptomatic.

Surgical procedures that have been used to treat lymphedema can be classified into two categories: ablative and physiologic operations. Although surgical debulking (surgical resection procedures) is the simplest approach to reducing the size of lymphedematous limbs, it causes extensive scarring and substantial morbidities. Consequently, surgical debulking is no longer used to treat lymphedema, except in extreme cases.

Lymphaticovenous anastomosis (LVA) and vascularized lymph node transplantation (VLNT) are two novel microsurgical techniques that, in contrast to CDT, are able to actually address the underlying causes and restore the lymphatic drainage. LVA achieves this by creating numerous bypasses between lymphatic vessels and venules in the affected limb, allowing the drainage of excessive fluid into the venous system, while vascularized lymph node transfer brings functioning lymph nodes to the dysfunctional area thus enabling the establishment of a new lymphatic path.

Both techniques have shown very promising results with low complication rates. However, no multicentric randomized controlled trial (RCT) has yet prospectively evaluated the superiority of these surgical techniques over CDT alone.

Methods

In this pragmatic, multicenter superiority trial, 228 patients suffering from chronic BCRL will be randomized 1:1 to the treatment arms and followed over a period of 24 months. Superiority of surgical over non-surgical treatment of chronic BCRL will be evaluated by analyzing patient reported outcomes and objectively measurable outcomes.

The primary endpoint of this study will be lymphedema-specific quality of life (QoL) measured by the LYMPH-ICF-UL at 24 months. Key secondary endpoint will be volume of the lymphedematous arm compared to the contralateral unaffected arm.

Furthermore, breast cancer-specific QoL, the number of lymph drainage sessions, the incidence of infections, surgical complications, adverse events, the burden on patients, as well as pain and health-economic properties will be assessed at multiple time points until 24 months after randomization respectively.

All endpoints of this study were discussed and developed with the Oncoplastic Breast Consortium (OPBC) Patient Advocacy Group as well as a group of patients who were interviewed after having undergone surgical treatment for chronic BCRL.

Conclusion

Currently, patients suffering from chronic BCRL do not yet have broad access to the best treatment available, in part due to a lack of prospective studies. Requests for cost reimbursement must be submitted to insurance companies in most countries, thus delaying surgical treatment and resulting in prolonged suffering of affected patients. This is untenable seeing as affected women suffer from a heavy physical, psychological and financial burden.

By conducting this pragmatic, randomized, multicenter trial, we aim to establish a solid scientific basis assessing the superiority of surgical treatment to CDT.