



# The preventive use of compression sleeve to reduce the risk of clinical lymphedema in patients with breast cancer

Berkay Demirors<sup>1^</sup>, Atilla Soran<sup>2^</sup>

<sup>1</sup>Department of General Surgery, Bursa Yüksek İhtisas Training and Research Hospital, Bursa, Turkey; <sup>2</sup>Division of Surgical Oncology, Comprehensive Lymphedema Program, Magee-Womens Hospital, University of Pittsburgh Medical Center, Pittsburgh, PA, USA

*Correspondence to:* Berkay Demirors, MD. Department of General Surgery, Bursa Yüksek İhtisas Training and Research Hospital, 16310 Bursa, Turkey. Email: drberkaydemirors@gmail.com.

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Lymphedema is a serious complication of breast cancer treatment, and lymphatic distribution and fluid transposition into the interstitial area are caused by either cancer invasion to the lymph nodes or concurrent surgery, radiation exposure. Patients may have symptoms such as heaviness or fullness and may present lymphedema clinical signs such as with swelling in the hand, arm, breast, chest wall or trunk. Consequently, the physical and psychological and emotional well-being is significantly deteriorated. Women who have obvious arm swelling, motion limitations, skin lesions like hyperkeratosis, nodules, and open wounds experience emotional dissatisfaction with their bodies (1). Up to 40% of patients with breast cancer face the inevitable breast cancer related lymphedema (BCRL) (2). Although a multidisciplinary approach is the foundation of breast cancer treatment, there may be a higher risk of BCRL as a result of surgical management, radiation, and systemic therapies.

The article published in *Journal of Clinical Oncology* recently enlightens us about how BCRL might be delayed or reduced in high-risk women using current data, which is the main reason why we found it to be quite interesting and insightful (3). The primary endpoint was arm swelling based on bioimpedance spectroscopy (BIS). It is important

to note that in all cases of this study, arm swelling was observed less frequently in the compression group (38%) than in those in the control group (53%) and significantly postponed symptoms (HR: 0.61; 95% CI, 0.43 to 0.85; P=0.004). Furthermore, due to BIS, the approximate incidence of arm swelling was relatively different; 42% (95% CI, 34% to 51%) in the compression group and 52% (95% CI, 44% to 61%) in the control group). On the other hand, when comparison settled by relative arm size, the results qualitatively resemble, whereas they occurred less frequently and developed later (HR: 0.56; 95% CI, 0.33 to 0.96; P=0.034). Overall, these results indicate that the aggregate incidence of arm swelling was found approximately 10% lower with compression sleeves: 14% (95% CI, 9% to 22%) in the comparison group and 25% (95% CI, 19% to 33%) in the control group. In addition, the authors observed that a multivariate Cox model identified older age and neoadjuvant chemotherapy as variables that were remarkably connected to the time to the beginning of arm size increase, but the authors also proved that approaches with sleeves remained a compelling factor after alteration for these variables (HR: 0.57; 95% CI, 0.34 to 0.97; P=0.038). Small sample size and baseline differences in significant risk factors between groups make

<sup>^</sup> ORCID: Berkay Demirors, 0000-0003-0321-4365; Atilla Soran, 0000-0002-3398-7230.

it difficult to draw firm conclusions about the efficacy of preventive compression sleeves. Nevertheless, in this study, with a prospective design, a considerable number of participants who were over 18 years old and operated with unilateral breast mass were evaluated. Additionally, based on the findings in this study, compression sleeves augment safe, appropriate, and preferable use in women, with significant positive effects on self-reported general health and physical functioning. On the other hand, it is not known whether similar results in incidences will remain in BCRL in 5 years' time.

Theoretically, advancements in oncoplastic surgery, including minimally invasive techniques, fewer axillary interventions, better systemic therapy agents, earlier symptom diagnosis, and more effective prevention strategies, should reduce the risk ratio of BCRL. As mentioned in the article, studies are heterogeneous and unresolved, therefore defining standardized indications for conservative interventions is challenging. The authors stated that prophylactic use of compression garments is advantageous in detection and intervention in inhibiting symptoms related to lymphedema at a high-risk profile because the terms and management of subclinical lymphedema remains not clear. Indeed, indocyanine green lymphography (ICG\_L) is a tool to identify dermal backflow before clinical swelling occurs. Nowadays, centers like us implement ICG\_L for the early diagnosis of lymphedema and personalized treatment such as manual lymphatic drainage, pressure adjustment of compression sleeve and compression pump (2,4).

In our daily practice, as one of the busiest breast surgery and lymphedema centers in the USA, we recommend high-risk patients wear a low-pressure (15–20 mmHg) compression sleeve before clinical signs of lymphedema occur (5). High-risk patients for lymphedema are those who had their axillary lymph nodes dissected, had  $\geq 5$  sentinel lymph nodes removed, had a Ldex of  $>7$  units (or a change of 7 units between two measurements), and experienced lymphedema symptoms including heaviness and fullness (6).

In conclusion, this topic covers more than simply the narrow idea of having important tools for educating lymphedema and close follow-ups. In addition, an alternative strategy might provide high-risk women for lymphedema with an effective and efficient preventative measure.

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