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Incidence of Breast Cancer Related Upper Extremity Lymphedema and Associated Cellulitis–A National Database Study

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Introduction: This study aims to determine the incidence of breast cancer related upper extremity and its association with cellulitis and to determine risk factors. In better understanding the epidemiology of breast-cancer-related lymphedema and associated cellulitis, we can better estimate the burden of this disease and better allocate resources in managing this challenging medical problem.

Methods: Data was utilized from the Taiwan National Health Insurance Research Database from 2004 to 2014. Patients were grouped into the type of surgery and adjuvant therapy received. Cox regression was used to determine hazard ratios were calculated for lymphedema in different therapy groups with breast cancer and for cellulitis in different therapy groups.

Results: 100,328 patients were included. The radical mastectomy group had the highest risk of lymphedema whether it was with no adjuvant therapy, with radiation therapy only, with chemotherapy only, and with radiation and chemotherapy (4.91 [2.63-9.17] $p < 0.0001$, 8.97 [3.96-20.35] $p < 0.0001$, 5.99 [3.34-10.72] $p < 0.0001$, 13.73 [7.68-24.55] $p < 0.0001$, respectively). The risk of any cellulitis diagnosis was higher in lymphedema patients versus non-lymphedema patients in the surgery and non-surgery groups (1.94 [1.84-2.05] $p < 0.0001$, 2 [1.62-2.46] $p < 0.0001$, respectively). Risk of developing cellulitis and requiring hospital admission were higher in lymphedema patients versus non-lymphedema patients in the surgery and non-surgery groups (3.11[2.8-3.46] $p < 0.0001$, 2.29 [1.68-3.11] $p < 0.0001$, respectively).

Conclusion: In any type of breast cancer surgery, the involvement of adjuvant therapy has an increased risk of developing lymphedema. Patients with lymphedema in comparison to those without lymphedema are at a significant risk of developing clinically relevant cellulitis whether by diagnosis only, requiring oral antibiotics for 7 to 14 days or requiring hospital admission and intravenous antibiotics. Being able to estimate the true incidence and associated cellulitis provides valuable data to shape health policy change.