Clinical Evidence Summary

L-Dex® Analysis for Lymphedema

Comparison of Volume Measurements and Bioimpedance Spectroscopy Using A Stand-on Device for Assessment of Unilateral Breast Cancer-Related Lymphedema

Ward LC, Thompson B, Gaitatzis K and Koelmeyer LA

European Journal of Breast Health, April 2024, DOI: https://doi.org//10.4274/ejbh.galenos.2024.2023-12-8

L-Dex (AUC = 0.832) had a significantly higher sensitivity than volume (AUC = 0.649) to detect unilateral arm lymphedema (p=0.0001) in patients with a confirmed ICG lymphedema diagnosis.

Body Positional Effects on Bioimpedance Spectroscopy Measurements for Lymphedema Assessment of the Arm

Koelmeyer, L., Ward, L. C., Dean, C. M., et al.

Lymphatic Research and Biology, October 2020, DOI: https://doi.org/10.1089/lrb.2019.0067

Study findings support that impedance measurements could be reliably taken using either the U400 or SOZO, representing supine and upright measurement positions, respectively. Impedance measurements taken on U400 and SOZO were highly correlated.

Correlation of L-Dex Bioimpedance Spectroscopy with Limb Volume and Lymphatic Function in Lymphedema

Coroneos, C. J., Wong, F. C., DeSnyder, S. M., et al.

Lymphatic Research and Biology, June 2019, DOI: https://doi.org/10.1089/lrb.2018.0028

This study assesed the validity of bioimpedance spectroscopy (BIS) measurements using L-Dex, and found that the L-Dex ratio correlates most closely with the physiologic measures of lymphatic function, and response to surgical intervention, and is the recommended metric when using BIS.

A Prospective Study of L-Dex Values in Breast Cancer Patients Pretreatment and Through 12 Months Postoperatively.

Ridner, S. H., Dietrich, M. S., Spotanski, K., et al.

Lymphatic Research and Biology, October 2018, DOI: https://doi.org/10.1089/lrb.2017.0070

This study's findings remained consistent with research supporting an L-Dex value of ≥7 as indicative of clinical lymphedema, with subclinical lymphedema reasonably occurring at somewhat lower, likely near ≥ 6.5. Furthermore, this study's data supports a modification to the prevention intervention trigger in the parent study from ≥10 L-Dex unit change to ≥6.5 L-Dex unit change.

Diagnosis of Upper Limb Lymphedema: Development of an Evidence-Based Approach

Dylke, E. S., Schembri, G., Bailey, D. C., et al.

Acta Oncologica, June 2016, DOI: http://dx.doi.org/10.1080/0284186X.2016.1191668

This study used a dermal backflow score determined from lymphoscintigraphy imaging assessment and compared it the measurements taken by bioimpedance spectroscopy (BIS). Findings showed that with mild lymphedema, BIS thresholds are superior to the commonly used thresholds.

L-Dex Ratio in Detecting Breast Cancer-Related Lymphedema: Reliability, Sensitivity, and Specificity

Fu, M. R., Cleland, C. M., Guth, A., et al.

Lymphology, June 2013, PMCID: PMC4040962

The L-Dex ratio with a cutoff point of 2 standard deviations sucssefully discriminated between at-risk breast cancer survivors and those with lymphedema, with 80% sensitivity and 90% specificity. However, clinicians should still integrate other assessment methods (i.e. self-report, clinical observation etc.) for the most accurate lymphedema detection.