**Background**

- Lymphedema (LE) can occur in up to 30% of patients who undergo axillary lymph node dissection (ALND).
- Simplified Lymphatic Microsurgical Preventing Healing Approach (SLYMPHA) is a lymphatic flow preservation approach that has been shown to decrease the incidence of postoperative LE using the metric of arm circumference.
- Bioelectrical impedance ratio (L-Dex) measures changes in lymphatic flow in order to detect LE.
- L-Dex was introduced in our institution in June 2017 as a routine measurement in patients after ALND with or without SLYMPHA as well as in patients with chronic lymphedema.
- In this study we use L-Dex ratio measurement as an objective assessment for LE in patients who underwent SLYMPHA.

**Methods**

- We performed a retrospective review of all the patient who underwent L Dex and correlated it with ALND and SLYMPHA data at a single institution.
- Medical records were reviewed for clinical evidence of LE.
- Statistical analysis was performed using SPSS 16.0 software.

**Results**

- 86 patients were included into the study.
- 54 (62.8%) patients underwent ALND alone and 32 (37.2%) underwent ALND with SLYMPHA.
- LE occurred in 39 (70.9%) of the patients who underwent ALND alone and 2 (6.2%) of those who underwent ALND with SLYMPHA (p<0.001).
- The median L-Dex was 7.45 (range -91 to 82) and 0.60 (range -8.4 to 9.2) for ALND alone and ALND with SLYMPHA, respectively (p = 0.01).
- Among patients with abnormal L-Dex ratios (> +10 or < -10), there were 0 patients who had undergone ALND with SLYMPHA and 29 (52.7%) patients who had undergone ALND alone (p<0.001).
- 29 of 39 (74.3%) of ALND only patients with LE had an abnormal L-Dex ratio and 0 of 2 ALND with SLYMPHA patients with LE were found to have an abnormal L-Dex ratio.

**Table**

<table>
<thead>
<tr>
<th></th>
<th>ALND Alone</th>
<th>ALND with SLYMPHA</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>54 (62.8%)</td>
<td>32 (37.2%)</td>
<td></td>
</tr>
<tr>
<td>L-Dex *</td>
<td>7.45 (-91 to 82)</td>
<td>0.60 (-8.4 to 9.2)</td>
<td>0.01</td>
</tr>
<tr>
<td>Abnormal L-Dex</td>
<td>29 (52.7%)</td>
<td>0 (0%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Clinical LE</td>
<td>39 (70.9%)</td>
<td>2 (6.2%)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

* Data reported as median (range). L-Dex = Bioelectrical impedance ratio, Abnormal L-Dex = Bioelectrical impedance ratio measure above +10 or below -10, LE = lymphedema.

**Conclusion**

- L-Dex is accurate in the identification of clinical LE in patients who have undergone ALND with SLYMPHA.
- L-Dex may be considered as an adjunct in the diagnosis of LE in this patient population.
- SLYMPHA is a reliable and effective technique that reduces the rates of post-operative lymphedema in breast cancer patients.

**References**