EARLY POSTOPERATIVE ARM SWELLING AND MANIFESTATION OF LYMPHOEDEMA CAN BE PREVENTED BY COMPRESSION SLEEVES AFTER AXILLARY LYMPH NODE INTERVENTIONS IN BREAST CANCER PATIENTS: A RANDOMIZED CONTROLLED TRIAL.

K. Ochalek\textsuperscript{1,2}, H. Partsch\textsuperscript{3}

26 International ISL- Congress, Barcelona, Sept 25-29, 2017

1. University of Physical Education, Krakow, Poland
2. Lymphedema Clinic, St. Lazarus Hospice, Krakow, Poland
3. Medical University of Vienna, Dermatology, Vienna, Austria
BACKGROUND AND AIM

- There is a lack of prospective randomized controlled trials evaluating compression in BCRL prevention, starting before surgery.
- The aim of this RCT was to evaluate the potential role of arm compression sleeves for reducing the incidence of postoperative breast cancer related arm oedema and to prevent secondary lymphoedema.

RCT, 45 patients undergoing breast cancer +LN-surgery pre-operatively randomized into:

Compression group (CG) (n=23)
- Circular knit sleeve in CCl 1 (15-21mmHg) (medi Bayreuth)
- + physical exercise program

No compression (NCG) (n=22)
+ physical exercise program

14-16 mmHg

Journal of Pain and Symptom Management: in print
METHODS

• Outcome parameters: (before surgery and after 1, 3, 6, 9, 12 months)
  
  – Arm volume (measurement of circumference)
  (calculation of limb volumes using simplified frustum formula)
  – „Excess limb volume” = affected – contralateral arm
    – Interface pressure of compression sleeves (1 and 6 mth)
    – QOL (EORTC QLQ-C30 and QLQ-BR23 questionnaires after 12 months)

• Patients were comparable concerning basic characteristics, type of surgery and additional therapeutic modalities (chemo, radiotherapy).
## Baseline characteristics

<table>
<thead>
<tr>
<th></th>
<th>Compression (CG) n=23</th>
<th>No compression (NCG) n= 22</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (yrs)</strong></td>
<td>52</td>
<td>64</td>
</tr>
<tr>
<td><strong>BMI (kg/m²)</strong></td>
<td>25,5</td>
<td>28,3</td>
</tr>
<tr>
<td><strong>Kind of surgery:</strong></td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Mastectomy</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Quadrantectomy</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Sentinel nodes</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td><strong>Additional therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Radiotherapy</td>
<td>23</td>
<td>22</td>
</tr>
</tbody>
</table>
DEFINITIONS:
„Sub-clinical lymphedema” and lymphedema

An increase of the arm volume exceeding 10 % compared to the volume before surgery was defined as lymphedema.

Increase of 5-10 % was considered as „sub-clinical lymphedema”

%Arm Volume changes after 1 month  
(Early oedema >2%)

• CG: 7/23 (30%)

• NCG: 14/22 (64%)

p<0.05

Frequency of volume changes
% Arm Volume changes after 1y (red)
1mo (blue)
and (Lymphedema = > 10%)

Frequency of volume changes
% Arm Volume changes over time
(> 5% subclinical, > 10% manifest LE)

- CG % Vol changes
  n = 23
  n.s.

- NCG % Vol changes
  n = 22
  p 0.0004
  Friedman

Amount of volume changes
\[ \text{"Excess limb volume" (ml)} = \text{Arm volume difference (affected-contralateral arm)} \]

Amount of volume changes
ASSESSMENT OF COMPRESSION

• VERY GOOD COMPLIANCE OF COMPRESSION
  - wearing time of sleeve - 12h per day (only 2 patients 6 h per day)
  - easy to put on and put off
  - compression comfort during work, leisure activities and sport
  - no complications (no problems with skin).
SUMMARY

• Mild oedema after breast cancer surgery is very frequent
• After 1 month: Significantly less edema in the CG (30%) vs. NCG (64%)
• Initial oedema may turn into lymphoedema
• (10/11 cases with lymphedema after 1y had some initial swelling)

• After 1 year:
  • Lymphoedema (> 10%): CG: 4(17%), NCG: 7(31,8%)
  • Subclinical (5-10%): CG: 0 (0%), NCG: 6(27%) (n.s.)

• Sleeves reduced the incidence of early swelling and lymphedema to ~one half
CONCLUSION

Compression sleeves in a pressure range around 15 mmHg in combination with physical activity are a safe and efficient option to prevent postsurgical arm swelling and lymphedema up to 12 months after axillary lymph node interventions.