EP 36.03 Ultrasound for assessment of pelvic floor contraction and construction of an ultrasound contraction scale

Maria Ø. Nyhus¹, ², Seema Mathew¹, ², Kjell Å. Salvesen¹, ², Ingrid Volloyhaug¹, ²
¹. Department for clinical and molecular medicine, Norwegian University of Science and Technology, Trondheim, Norway. ². Gynecology and Obstetrics, St. Olavs Hospital, Norway.

Aim
- To construct an ultrasound contraction scale

Introduction
- Pelvic floor muscle contraction can be assessed by palpation, vaginal manometry and electromyography, but there is no gold standard
- Ultrasound can be used to measure contraction, but no ultrasound contraction scale exists

Method
- Cross-sectional study of 195 women undergoing surgery for incontinence (n=65), prolapse (n=65) and primigravida (n=65)
- Contraction was assessed by palpation - Modified Oxford Scale
- Transperineal ultrasound - proportional change in levator hiatal anteroposterior diameter from rest to contraction
- Spearman’s rank (\(r\)) tested the correlation between palpation and ultrasound

Results
- Cut-offs for the ultrasound contraction scale were based on the proportion of women allocated to each category by palpation
- Correlation analysis showed a moderate correlation between palpation and ultrasound, \(r = 0.52\)

<table>
<thead>
<tr>
<th>Contraction</th>
<th>Modified Oxford Scale</th>
<th>Change in levator hiatal anteroposterior diameter from rest to contraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absent</td>
<td>0</td>
<td>(\leq 1%)</td>
</tr>
<tr>
<td>Weak</td>
<td>0.5 – 2</td>
<td>2 – 14 %</td>
</tr>
<tr>
<td>Normal</td>
<td>2.5 – 4</td>
<td>15 – 29 %</td>
</tr>
<tr>
<td>Strong</td>
<td>4.5 - 5</td>
<td>(\geq 30%)</td>
</tr>
</tbody>
</table>

Conclusion
- We found a moderate correlation between palpation and ultrasound measuring the change from rest to contraction in levator hiatal diameter
- We created an ultrasound scale for measuring pelvic floor contraction
- The scale can be used to evaluate effect of pelvic floor exercise