Musculoskeletal pain of the non-affected arm, neck and back in patients with brachial plexus injury
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Background
In brachial plexus injury (BPI), the non-affected arm, back and neck may be used more intensely and frequently to perform daily tasks, which could result in an increased risk of musculoskeletal complaints (MSC)

Aims
I. To assess prevalence of MSC in the last year of non-affected arm, neck or back in individuals with BPI, compared to a control group
II. To investigate factors associated with MSC and disability after a BPI

Participants
Individuals with unilateral BPI (Figure 1); aged ≥ 18 years; date of injury: ≥ 1 year ago
Control subjects: aged ≥ 18 years

Method
Definition MSC: pain in the muscles, tendons and/or bones not caused by an accident, sports injury, infection or joint disease
Postal survey assessing:
• Personal characteristics, MSC
• Health care consumption
• Severity of BPI: functional movements: range 0-10 (normal function-no function) (Figure 2)
• Pain, health perception, mental health (RAND-36)
• Disability: general (PDI) and upper limb (DASH)

Results
Participants: BPI: N=79; mean age 53y (SD16); 65% men. Time since BPI: 14.7 y ± 14.3. Response rate 47%. Controls: N=114; mean age 50y (SD16); 63% men.

Discussion / Conclusions
• Half of the patients with BPI suffer from MSC, which is more than controls or the general population (37%)
• Severity of limitations in functional movements of the affected arm predicts MSC and disability
• Low mental health could be a cause or a result of MSC and needs to be investigated further

Clinical Implications
Clinicians should pay attention to the unaffected arm, neck and back in the acute and chronic phase after BPI and make individuals with MSC aware of possible risks for MSC

Table 1: Predictors for presence of MSC in BPI (logistic regression)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>S.E.</th>
<th>Sig.</th>
<th>Exp(B)</th>
<th>95% C.I. for EXP(B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAND-36 Mental health</td>
<td>-0.051</td>
<td>0.021</td>
<td>0.013</td>
<td>0.950</td>
<td>0.913 - 0.989</td>
</tr>
<tr>
<td>Affected movements (N)</td>
<td>0.165</td>
<td>0.073</td>
<td>0.025</td>
<td>1.180</td>
<td>1.021 - 1.362</td>
</tr>
<tr>
<td>Constant</td>
<td>3.251</td>
<td>1.635</td>
<td>0.047</td>
<td>25.810</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Predictors for disability in BPI (linear regression)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>B</th>
<th>S.E.</th>
<th>Sig. (2-tailed)</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>26.861</td>
<td>4.791</td>
<td>0.001</td>
<td>16.883 - 35.821</td>
</tr>
<tr>
<td>MSC</td>
<td>14.400</td>
<td>3.765</td>
<td>0.001</td>
<td>6.975 - 22.442</td>
</tr>
<tr>
<td>Age at BPI (years)</td>
<td>0.225</td>
<td>0.096</td>
<td>0.023</td>
<td>0.035 - 0.431</td>
</tr>
<tr>
<td>Pain in BPI affected hand</td>
<td>7.107</td>
<td>3.626</td>
<td>0.059</td>
<td>-0.733 - 13.920</td>
</tr>
<tr>
<td>Affected movements (N)</td>
<td>1.638</td>
<td>0.623</td>
<td>0.015</td>
<td>0.404 - 2.822</td>
</tr>
</tbody>
</table>

Figure 1: Participant with brachial plexus injury
Figure 2: Pictures used to assess functional movements of the affected limb
Figure 3: Differences between BPI and controls for prevalence of MSC (%), health care consumption (%) and disability (median of PDI scores)