What do nurse anaesthetists know about pain?

Psychometric testing: «Nurses Knowledge & Attitudes Survey Regarding Pain Anaesthesia (NKAS-ANÄ)»

Ries Gisler, T.; Klimkait, M.; Urwyler, A.; Frei, I. A.; Fierz, K.

Tobias Ries Gisler, MScN, RN, Nurse Anaesthetist

tobias.ries-gisler@usb.ch

May 16, 2016
Surgery is associated with acute postoperative pain.

Acute pain is a relevant problem for the patients within the first 48 hours after surgery and affects up to 83%.

Acute postoperative pain is associated with:
- extended convalescence and work disability
- prolonged hospitalisations
- increased healthcare costs

Acute postoperative pain is a risk factor for chronic pain.

(Wilder-Smith, 2011; Lorentzen, Hermansen, & Botti, 2011; Crawford, Armstrong, Boardman, & Coulthard, 2011; IASP, 2010)
Background
Background
Background

• Nurse anaesthetists require up-to-date expertise in pain management

• In the perioperative setting, they need to know how to appropriately treat different stages of pain

• If knowledge in the field of pain management is lacking, it can adversely effect further treatment and recovery

(Argoff, 2013; Bernardi, Catania, Lambert, Tridello, & Luzzani, 2007; Stomberg et al., 2003)
Background
Aim of postoperative pain management

• Alleviate acute pain
• Affect the healing process positively
• Prevent complications:
  ➢ Adverse cardiovascular
  ➢ respiratory effects
  ➢ Delirium
  ➢ Chronic pain
• Reduce economic burden

(Breivik, Collett, Ventafridda, Cohen, & Gallacher, 2006; Angster & Hainsch-Müller, 2005; Kainzwaldner et al., 2013; Gerbershagen, 2013)
Background

- In Switzerland, nurse anaesthetists and anaesthesiologists are responsible for perioperative pain management

- Nurse anaesthetists administer and prescribe pain medication in delegation of anaesthesiologists

- Independent risk factors have to be considered: exposure, surgery, gender, age and maybe existing preoperative pain

(Stomberg, Sjöström, & Haljamae, 2003; Ndumia & Ochieng, 2012; SIGA/FSIA, 2010; Gerbershagen, 2013)
Goal for this study

Lack of evidence regarding nurse anaesthesist's knowledge of post-operative pain management
Aim of this study

Validation of the German version of the “Nurses Knowledge & Attitudes Survey Regarding Pain Anaesthesia (NKAS-ANÄ)”

Testing different forms of validity and reliability
Adaptation of the pre-existing questionnaire NKAS-A

- Evaluation, revision of questionnaire according to relevance by independent anaesthesia experts (n=10); Jun-Jul 2013
- Revision, restructuring of questions by experts in anaesthesia, oncology (n=5); Sep-Oct 2013

Psychometric testing new NKAS-ANÄ (Step 1)

- Evaluation of face validity: medical doctor, associate professor of anaesthesiology and chronic pain (n=1); Dec 2013
- Testing item content validity, scale content validity/ave: nurses/medical doctors in anaesthesia (n=10); Dec 2013-Mar 2014
- Testing readability of questionnaire: anaesthesia, emergency & critical care experts (n=3); Mar 2014

Psychometric testing NKAS-ANÄ (Step 2)

Testing of final version of the questionnaire for nurse anaesthetists of all levels of education (testing convergence validity, testing reliability KR 20) (n=209); Aug-Sep 2014

Methods

### Variables & measurement

<table>
<thead>
<tr>
<th>Questionnaires</th>
<th>Content/extent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scale 1 (Items 1-19)</strong></td>
<td></td>
</tr>
<tr>
<td>Binary questions</td>
<td></td>
</tr>
<tr>
<td>• Sociodemographic data</td>
<td></td>
</tr>
<tr>
<td>• Self-assessment of own expertise</td>
<td></td>
</tr>
<tr>
<td>• General expertise in pain</td>
<td></td>
</tr>
<tr>
<td><strong>Scale 2 (Items 20-34)</strong></td>
<td></td>
</tr>
<tr>
<td>Multiple-choice questions</td>
<td></td>
</tr>
<tr>
<td>• Specialised knowledge of perioperative pain management</td>
<td></td>
</tr>
<tr>
<td>• Specialised knowledge of post-operative pain management</td>
<td></td>
</tr>
</tbody>
</table>
Design/Setting
final testing

• Descriptive online questionnaire
• Convenience sample
• Five hospitals in the German-speaking part of Switzerland (n=209)
## Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Participants (number)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>female</td>
<td>75</td>
<td>69</td>
</tr>
<tr>
<td>not specified</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-40</td>
<td>54</td>
<td>49</td>
</tr>
<tr>
<td>41-50</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>51≥60</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>not specified</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Employment (%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤40</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>41-80</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>81-100</td>
<td>71</td>
<td>65</td>
</tr>
<tr>
<td>not specified</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
Results

Validity

• Item Content Validity: 0.4-1.0
• Scale Content Validity/Ave: 0.85
• Convergence Validity according to Pearson’s $r$ ($\alpha = 0.05$) was weak: $r = .017$ and not significant

Reliability

• KR 20 (Cronbach’s alpha) = 0.52 for the instrument
  ➢ Scale 1: 0.45
  ➢ Scale 2: 0.73
Discussion

• The German version of the NKAS-ANÄ has satisfactory content validity, and part two has sufficient reliability

• Before using the entire instrument to assess knowledge of the nurse anaesthetists, the usefulness of the items of first part should be reconsidered

• Rewording of certain items is recommended, psychometric properties (e.g. construct validity) have to be tested in a larger sample
Conclusion

• The NKAS-ANÄ is a promising instrument to determine expertise in anaesthesiological-pharmacological pain on a single-item level

• It seems that nurse anaesthetists need to have more knowledge and expertise in general perioperative pain management

• Further research is needed in order to define summary scores and evidence based on construct validity
Limitations

• Not all areas of anaesthesia nursing were included

• Certain items were misleading

• No comparison between trained nurse anaesthetist and nurse anaesthetist in training was possible
Thank you for your attention!

Tobias Ries Gisler  
Universitätsspital Basel  
Anästhesiologie  
Spitalstrasse 21  
4031 Basel  
Tel.: +41 61 265 72 54  
tobias.ries-gisler@usb.ch
References