Can Podiatrists identify the level of heel pressure damage as defined by the EPUAP classification, to ensure interrater reliability in assessing heel pressure damage?

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Background

Heel ulceration appears to be increasing in incidence1,2. Identification of the grade of damage allows a pressure ulcer prevention plan and management regimen3. The heel is a complex structure with its anatomy making it more vulnerable to damage1 (Image 1). Interrater reliability assessment with regard to pressure ulceration is an area of research, which has inconsistent results. Meaningful comparisons is difficult and there is not enough evidence to recommend a specific tool4. Education need to be integrated in the research to ensure the tool is assessed and not the knowledge of the individuals involved5,6. A pressure ulcer classification tool should provide a consistent and accurate assessment4.

Aim

An interrater reliability study was conducted using a representative sample of podiatrists (raters) to grade heel pressure damage using the EPUAP classification tool examining the EPUAP(1998) classification tool for pressure ulceration grading. Education with regards to the tool was provided to ensure the classification tool and not the knowledge of the tool was tested.

Method

A group of podiatrists were educated on the use and application of the tool. Eleven respondents graded 54 images (9 of each category) using an electronic audience participation system (Image 3). The images used were all graded by four experts in the field of pressure ulceration and the respondent classifications were compared to the panel of experts grading of the images (Image 2 & 4).

Results

A total of eleven participants completed the study. The mean percentage correct for the group was 74.92% (Table 1). Issues around the identification of grade 1, grade 2, grade 3 pressure damage were identified.

Table 1: Percentage correct for each participant

<table>
<thead>
<tr>
<th>Device ID</th>
<th>% Correct</th>
</tr>
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<tbody>
<tr>
<td>11AF0</td>
<td>74.07%</td>
</tr>
<tr>
<td>17BE7</td>
<td>94.44%</td>
</tr>
<tr>
<td>243BA</td>
<td>68.52%</td>
</tr>
<tr>
<td>243C7</td>
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<td>23F99</td>
<td>62.96%</td>
</tr>
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<td>233E8</td>
<td>74.07%</td>
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<tr>
<td>2340F</td>
<td>68.52%</td>
</tr>
<tr>
<td>233E7</td>
<td>77.78%</td>
</tr>
<tr>
<td>23403</td>
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<td>2340A</td>
<td>68.52%</td>
</tr>
<tr>
<td>243C6</td>
<td>83.33%</td>
</tr>
</tbody>
</table>

Multi rater kappa at a value 0.2 to the power of 80 0.57

Discussion

The interrater reliability score shows moderate agreement. In this study the participants were knowledgeable, but not necessarily experts in the area of pressure ulceration. A similar interrater reliability assessment with a group of knowledgeable nurses, but no specific education was given. The multirater kappa, ranged from 0.37 to 0.435. In this study, with education the multirater kappa was 0.578, which is a better outcome for a similar sample group. The use of images in interrater reliability assessment of pressure ulcer classification tool is complex, but is ethically and statistically the best method as a set number of images of each grade will ensure the tool is assessed correctly. This research also highlighted the development of a classification tool which relies on depth is difficult. The identification of grade1, grade 2 and grade 3 pressure damage was not consistent. This may be due to the fact images were used3,7, or may be related to the lack of clarity and complexity perceived in the EPUAP (1998) classification tool 8. The NPAUP/EPUAP (2009) classification tool aims to address issues surrounding clarity and complexity.

Recommendations

Education and familiarity with regards to the tool is essential to ensure that the tool and not the participant’s knowledge is being assessed. Any future research should incorporate this. The NPAUP/EPUAP (2009) classification tool must be tested in a robust fashion with excellent statistical basis and be repeated to ensure that it achieve its aims. Research into the implication of deep tissue injury and its identification must be continued. If we understand the mechanism of injury, this could be incorporated into a classification tool and may improve it ease of use.

References

5 Briggs, S. 2006, "How accurate are RGNs in grading pressure ulcers?", British Journal of Nursing, vol. 15, no. 21, pp. 1230-1234.

Table 1: Percentage correct for each participant

Image 1

Image 2: Grade 2 heel pressure damage as shown in the presentation to participants

Image 3: Audience Response Unit -Turning Technology 2009-2010

Image 4: A grade 3 Heel Pressure ulceration used in the study.

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