The PERS(2) ON score for systemic assessment of symptomatology in palliative care: a pilot study

ARTICLE in EUROPEAN JOURNAL OF CANCER CARE · NOVEMBER 2015

Impact Factor: 1.56 · DOI: 10.1111/ecc.12419

READS
19

9 AUTHORS, INCLUDING:

Eva K Masel
Medical University of Vienna
17 PUBLICATIONS 13 CITATIONS
SEE PROFILE

Sophie Schur
Medical University of Vienna
21 PUBLICATIONS 22 CITATIONS
SEE PROFILE

Beate Schrank
Medical University of Vienna
61 PUBLICATIONS 410 CITATIONS
SEE PROFILE

Christine Marosi
Medical University of Vienna
252 PUBLICATIONS 10,820 CITATIONS
SEE PROFILE

All in-text references underlined in blue are linked to publications on ResearchGate, letting you access and read them immediately.
The PERS\textsuperscript{2}ON score for systemic assessment of symptomatology in palliative care: a pilot study

E.K. MASEL, MD, Clinical Division of Palliative Care, Department of Internal Medicine I, Medical University of Vienna, Vienna, A.S. BERGHOFF, MD, Clinical Division of Oncology, Department of Internal Medicine I, Medical University of Vienna, Vienna, S. SCHUR, MD, Clinical Division of Palliative Care, Department of Internal Medicine I, Medical University of Vienna, Vienna, B. MAEHR, MD, Clinical Division of Palliative Care, Department of Internal Medicine I, Medical University of Vienna, Vienna, B. SCHRANK, MD, PHD, Department of Psychiatry and Psychotherapy, Medical University of Vienna, Vienna, R. SIMANEK, MD, Department of Internal Medicine, Hematology and Oncology, Hanusch Hospital, Vienna, M. PREUSSER, MD, Clinical Division of Oncology, Department of Internal Medicine I, Medical University of Vienna, Vienna, C. MAROSI, MD, Clinical Division of Oncology, Department of Internal Medicine I, Medical University of Vienna, Vienna, & H.H. WATZKE, MD, Clinical Division of Palliative Care, Department of Internal Medicine I, Medical University of Vienna, Vienna, Austria


The comprehensive assessment of symptoms is the basis for effective, individualised palliative treatment. Established scoring systems provide in-depth information but are often lengthy and hence unsuitable. We introduce the PERS\textsuperscript{2}ON score as a short and practically feasible score to evaluate symptom burden. Fifty patients admitted to a Palliative Care Unit rated seven items, i.e. pain, eating (loss of appetite/weight loss), rehabilitation (physical impairment), social situation (possibility for home care), suffering (anxiety/burden of disease/depression), O\textsubscript{2} (dyspnoea) and nausea/emesis, on a scale ranging from 0 (absence) to 10 (worst imaginable), resulting in a score ranging from 0 to 70. Assessments were performed at admission, 7 days after admission and at the day of discharge. Symptom intensity scores were calculated, and change over time was evaluated. A significant improvement was observed from the PERS\textsuperscript{2}ON score between admission and 7 days (\( P < 0.001; \) paired \( t \)-test). Significant improvement from baseline evaluation to evaluation on the day of discharge was observed (\( P = 0.001; \) paired \( t \)-test). This study provides initial evidence that the PERS\textsuperscript{2}ON score is both feasible and sensitive to changes of the most prominent symptoms in palliative care. It may be useful in clinical practice to direct palliative treatment strategies and provide targeted symptom management.

Keywords: palliative care, advanced cancer, symptom assessment, self-assessment questionnaire, quality of life, treatment outcome.

INTRODUCTION

Symptom assessment in patients receiving Best Supportive Care is a challenging task for physicians. Hence, traditional clinical assessment frequently misses target symptoms, and suffering of patients in a palliative care setting might be underdiagnosed [Haidet et al. 1998, Snyder et al. 2007]. Treatment options that focus on individ-
ual needs and on symptom relief require an appropriate anamnestic survey to best palliate treatable symptoms. The medical history of patients admitted to a Palliative Care Unit differs essentially from traditional anamnesis as it focuses most on burdensome symptoms, suffering and social shortcomings (Kaasa et al. 2008; Stiel et al. 2010, 2012; Hjermstad et al. 2012; Radbruch et al. 2012). Best practice of palliative care continuously has to adapt to specific patient-centred needs and values (Barazzetti et al. 2010). Standard elements of conducting a medical history as well as physical examination are included into a comprehensive palliative assessment. However, certain aspects are relevant that extend beyond the traditional domains. Beside psychosocial and spiritual support both to patients and their caregivers, symptom assessment is a core objective of palliative care. Various structured assessment methods have been evaluated (Block 2000; Chang et al. 2000; Emanuel et al. 2001; Stiel et al. 2010; Hjermstad et al. 2012; Simon et al. 2012; Watanabe et al. 2012; Oechsle et al. 2014). However, several of these assessments are not easily applicable as they are time consuming and need special training to be performed appropriately. The Edmonton Symptom Assessment System (ESAS) is a widely used self-report, symptom intensity tool for rating nine common symptoms in palliative care. A revision of the ESAS, the ESAS-Revised (ESAS-r) was shown to be easier to understand and preferred by patients due to its clarity and format (Watanabe et al. 2011). ESAS and ESAS-r do not include assessment of the social situation of the patients, which represents a relevant aspect in palliative care. Furthermore, for evaluation of ESAS and ESAS-r, a patient questionnaire has to be used. Multiple symptom assessment tools are the MD Anderson Brief Symptom Inventory (Cleeland et al. 2000), the Rotterdam Symptom Checklist (De Haes et al. 1990), the Symptom Distress Scale (Mc Cormkle 1987) or the Patient-Reported Outcomes Measurement Information System (PROMIS) (Cella et al. 2007). Using an assessment tool has to be combined with careful physical examination and a clinical interview to ascertain the details of each symptom.

Predefined assessment tools are not implemented at each Palliative Care Unit. In this study, we aimed to establish a structured palliative assessment tool that is clinically useful and feasibly applicable in everyday practice. We developed it for medical and nursing staff or a Palliative Care Consultation Team and wanted it also to be usable by less specified palliative care givers or medical students. The PERS’ON score [P: pain, E: eating, R: rehabilitation, S: social situation; suffering, O: O2, N: nausea/emesis] evaluates the intensity of pain, loss of appetite/weight loss, physical impairment, psychosocial burden, dyspnoea and nausea/ emesis. It explores patient-reported symptom burden on a numeric rating scale from 0 [no burden] to 10 [worst imaginable burden]. Using a patient questionnaire is not necessarily needed while using the PERS’ON score because of its good memorability. It was specifically designed to be applicable in a short period of time to facilitate integration into clinical practice. The rationale for this study was to determine whether a clinical patient-centred assessment based on the mnemonic PERS’ON allows to assess and improve core symptoms of patients assigned to receive palliative care treatment.

METHODS

Patients

Fifty consecutive patients with advanced cancer, admitted to the Palliative Care Unit at the Medical University of Vienna between March 2014 and July 2014, were included in this prospective study. Inclusion criteria were an estimated life expectancy of more than 3 weeks according to the attending physician as well as written informed consent for participation. Patients who did not meet the inclusion criteria, were not able to communicate appropriately or did not give their consent were excluded from the study. Karnofsky Performance Status Scale (KPS) was assessed as previously published (Mor et al. 1984). The study was approved by the local Ethics Committee (1386/2014).

The PERS’ON score

The PERS’ON score includes the following items:

- **Pain**
  - Eating (cachexia/loss of appetite/weight loss)
  - Rehabilitation (physical impairment)
- **Suffering** (anxiety/burden of disease/depression)
- **Social situation** (possibility for home care/out of hospital care)
- **O2**: dyspnoea
- **Nausea/Emesis**

Each item is rated on a numeric scale between 0 [no burden] and 10 [worst imaginable burden]. All seven points are summed resulting in an overall score between 0 and 70. The original scoring sheet is provided in Figure 1.

Symptom burden was rated using the PERS’ON score at admission, 7 days after administration and on the day of discharge. On the day of admission, the PERS’ON score was explained to the patients by the attending Palliative
Care Unit physician and completed together. Medical history was collected based on the PERS² score. Seven days after admission and at the day of discharge, the PER-S²ON score was handed out to the patients by nurses or physicians of the Palliative Care Unit and completed by the patients alone.

Statistical analysis

Spearman’s rank correlation coefficient was used to evaluate monotone associations between two continuous variables. Paired t-test and sign test were used to assess group differences in repeated measurement of the PERS²ON score in the same patient. The sign test was used to evaluate differences between pairs of observations. A two-tailed significance level of 0.05 was applied. All statistical analysis was performed with statistical package for the social sciences (spss) 20.0 software (SPSS, Chicago, IL, USA).

RESULTS

Patient characteristics

Data of 50 consecutive patients [25/50 (50%) men; 25/50 (50%) women] with a median age of 64 years (range 31–84) at inclusion were available for further analysis.

Thirty-five patients had to be excluded due to: (1) Did not meet inclusion criteria [n = 18, 51%], (2) Deterioration of performance status [n = 12, 34%], (3) Withdraw consent [n = 3, 9%] and (4) Language problems [n = 2, 6%]. Table 1 lists further patients’ characteristics.

Baseline evaluation using the PERS²ON score

Completing the PERS²ON score took approximately 10 min at first administration. The median baseline PERS²ON score was 32 (range 5–54) at admission to the Palliative Care Unit. The highest median sub-scores were observed for potential of rehabilitation (7; range 1–10), followed by eating (5; range 0–10) and suffering (5; range 0–10). Table 2 lists details on the median scores of all PERS²ON items. No correlation of PERS²ON score with KPS (Spearman’s correlation coefficient −0.189; P = 0.189), age (Spearman’s correlation coefficient 0.009; P = 0.950), gender (P = 0.869; Kruskal–Wallis test) or primary tumour (P = 0.403; Kruskal–Wallis test) was observed.

Table 1. Patients’ characteristics

<table>
<thead>
<tr>
<th>Entire cohort (n = 50)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age, years [range]</td>
<td>64</td>
<td>100</td>
</tr>
<tr>
<td>Median Karnofsky performance status scale [range]</td>
<td>60</td>
<td>100</td>
</tr>
<tr>
<td>Primary tumour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breast cancer</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Pancreatic cancer</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Head and Neck carcinoma</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Bladder Cancer</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Cholangiocellular carcinoma</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Diffuse large B-cell lymphoma</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Cancer of unknown primary (CUP)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Glioblastoma</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Multiple Myeloma</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Oesophageal cancer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Ovarian cancer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Renal cell carcinoma</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Squamous cell carcinoma</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Thymoma</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Thyroid cancer</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

© 2015 John Wiley & Sons Ltd

The PERS²ON score for symptom assessment in palliative care
Repeated measurements of the PERS\textsuperscript{ON} score

Completing the PERS\textsuperscript{ON} score took approximately 5 min as part of the following assessment. Re-evaluation of the PERS\textsuperscript{ON} score 7 days after admission to the Palliative Care Unit was possible in 32/50 (64\%) patients. No re-evaluation was performed in 18/50 (36\%) patients due to death (15/18; 83.3\%) or discharge (3/18; 16.6\%) within the first 7 days after administration. Median PERS\textsuperscript{ON} score 7 days after admission was 16 (range 3–57). Highest median sub-scores were observed for potential of rehabilitation [4; range 0–10] and suffering [3; range 0–10]. Table 2 lists the median scores of all PERS\textsuperscript{ON} items 7 days after admission.

Re-evaluation of the PERS\textsuperscript{ON} score on the day of discharge was possible in 13/50 (26\%) patients. Median PERS\textsuperscript{ON} score at day of discharge was 11 (range 3–37). Highest sub-scores were observed for potential of rehabilitation [4; range 0–9] and suffering [3; range 1–8]. Table 2 lists the median scores of all PERS\textsuperscript{ON} items at day of discharge.

Change of PERS\textsuperscript{ON} score

Median change of the overall PERS\textsuperscript{ON} score within the first 7 days of admission was 8 (range –15 to 36); 24/32 (75.0\%) patients presented with an improvement in the PERS\textsuperscript{ON} score; 5/32 (15.6\%) patients experienced a deterioration reflected in a higher PERS\textsuperscript{ON} score; 3/32 (9.3\%) patients reported no change in PERS\textsuperscript{ON} Score.

Compared to the baseline PERS\textsuperscript{ON} Score, the PERS\textsuperscript{ON} Score 7 days after admission showed significantly lower values (<0.001, paired t-test, $P = 0.001$, sign test). Table 2 lists further details on the improvement of the PERS\textsuperscript{ON} Score items. Figure 2 displays the change in the PERS\textsuperscript{ON} Score (Fig. 2A) as well as the change in each item (Fig. 2B) from baseline to 7 days after admission.

The PERS\textsuperscript{ON} Score also presented statistically significant improvement from baseline evaluation to 7 days after admission in the 15 patients who died at the Palliative Care Unit (median overall survival 8 days, range 8–51 days). Median baseline PERS\textsuperscript{ON} Score was 31 [range 13–45] and median PERS\textsuperscript{ON} Score 7 days after admission

\begin{table}
\centering
\caption{PERS\textsuperscript{ON} Score at baseline, 7 days after admission and at the day of discharge}
\begin{tabular}{llllll}
\hline
 & Baseline PERS\textsuperscript{ON} score, median [range] ($n = 50$) & 7 days PERS\textsuperscript{ON} score, median [range] ($n = 32$) & $P$ value (paired t-test) baseline vs. 7 days & Day of discharge PERS\textsuperscript{ON} score, median [range] ($n = 13$) & $P$ value (paired t-test) baseline vs. day of discharge \\
\hline
PERS\textsuperscript{ON} Score & 32 [5–54] & 16 [3–57] & <0.001 & 11 [3–37] & 0.001 \\
Pain & 4.5 [0–9] & 2 [0–7] & <0.001 & 2 [0–4] & 0.002 \\
Eating & 5 [0–10] & 2 [0–8] & <0.001 & 2 [0–8] & 0.009 \\
Rehabilitation & 7 [1–10] & 4 [0–10] & 0.090 & 4 [0–9] & 0.059 \\
Suffering & 5 [0–10] & 3 [0–10] & 0.035 & 3 [1–8] & 0.004 \\
Social setting & 4 [0–10] & 2 [0–10] & 0.021 & 0 [0–9] & 0.108 \\
O\textsuperscript{2} – dyspnoea & 2 [0–10] & 0.5 [0–10] & 0.045 & 0 [0–8] & 0.257 \\
Nausea/emesis & 1 [0–9] & 0 [0–10] & 0.050 & 0 [0–5] & 0.856 \\
\hline
\end{tabular}
\end{table}

\textbf{Bold values indicate} $p$ value $\leq 0.05$

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure2}
\caption{Change in the PERS\textsuperscript{ON} score. [A] Change of the PERS\textsuperscript{ON} score from baseline to 7 days after the admission and day of discharge. [B] Change in each item of the PERS\textsuperscript{ON} score from baseline to 7 days after the admission and day of discharge.}
\end{figure}
was 21 (range 13–57, \( P = 0.05 \); paired \( t \)-test) in this patient population.

Median change of PERS\(^\text{ON} \) Score from baseline to day of discharge was 13 (range −5 to 34). Exactly, 12/13 (92%) patients presented with improvement of PERS\(^\text{ON} \) Score from baseline compared to the day of discharge compared to only 1/13 (8%) patient reporting with a decline of PERS\(^\text{ON} \) Score.

Compared to the baseline PERS\(^\text{ON} \) Score, the PERS\(^\text{ON} \) Score at the day of discharge presented with significantly lower values \( |P = 0.001; \) paired \( t \)-test; \( P = 0.003; \) Sign test). Figure 2 displays the change in the PERS\(^\text{ON} \) Score [Fig. 2A] as well as the change in each item [Fig. 2B] from baseline to day of discharge.

**DISCUSSION**

The median observed PERS\(^\text{ON} \) Score in our prospectively evaluated cohort was 32 with a maximum observed score of 54 of 70 points, reflecting the necessity to consider the high symptom burden of patients being admitted to a Palliative Care Unit. The vast majority of patients (75.0%) presented with a significant improvement in the PERS\(^\text{ON} \) Score after 7 days. Our data show that the highest symptom improvement was observed in potential of rehabilitation (physical impairment), eating (cachexia/loss of appetite/weight loss) and alleviating suffering (anxiety/burden of disease/depression). In case of physical limitations, a physiotherapist was immediately requested for a targeted physical training. In the presence of severe cachexia, loss of appetite or weight loss, an early intervention by the dietician was carried out in the form of dietary advice or parenteral nutrition (if indicated). If patients presented with psychological or psychiatric symptom burden, the psychotherapist of our ward provided regular therapy and if applicable psychopharmacological medication was started.

In comparison to other assessment tools, the PERS\(^\text{ON} \) Score does incorporate the possibility of home care. Social and economic needs of patients may hinder discharge and home care and lead to self-perceived burden as well as distress in caregivers (Covinsky et al. 1994, 1996; McPherson et al. 2007; Wolff et al. 2007). The PERS\(^\text{ON} \) Score helped to identify patients with a poor social network, where the possibility of out of hospital care was unlikely to be given. Thus, the social worker was involved at an early stage to discuss possible options with the patients.

Experiencing suffering is multidimensional and consists of body image, desires, meaning of the illness, relationships, values and spiritual believe. It cannot be classified only by symptom assessment but requires interaction with the patient’s individual world (Wilson et al. 2007). It is reported that psychological distress lessens with adequate pain relief (Mystakidou et al. 2006), while it was shown that mortality rates are up to 25% higher in persons who experience depressive symptoms, either themselves or their caregivers (Schulz & Beach 1999; Satin et al. 2009). The results of our study reflect that the multidisciplinary and comprehensive approach of a palliative care team already offers significant symptom relief in the very short time period of only 7 days, which is facilitated by the systemic symptom evaluation by using the PERS\(^\text{ON} \) Score.

The structured assessment and triage of distressing symptoms is basis for adequate, individualised symptom management for patients suffering from advanced diseases. Here, we introduce the PERS\(^\text{ON} \) Score, which is an easily memorisable multiple symptom assessment score. It was easy to use and patients were able to answer all items at the predefined time points. From our experience, it can also be used by less specified staff, medical students and Palliative Care Consultation Teams and should not only serve as a score to assess symptom burden but also help to perform a structured anamnesis. Discordance between patient-reported and physician-documented symptoms is a common pitfall (Stromgren et al. 2001; Desharnais et al. 2007), so we aimed to emphasise the PERS\(^\text{ON} \) Score as a structured, patient-reported assessment that avoids misunderstandings. It proved to be easily implemented into clinical practice and was valued by both physicians and patients because it provided a fast, efficient and structured evaluation of symptom burden. To meet the patient as a ‘person’ is the basis for the determination of individual suffering.

Some limitations of our study should be mentioned. First of all, the sample size was small. A potential bias may be the issue of report bias [e.g. ‘wishing to please the experimenter’]. Furthermore, we did not compare the PERS\(^\text{ON} \) Score to other existing assessment tools in this feasibility study. However, we intend to prospectively compare the PERS\(^\text{ON} \) Score to other scores such as the ESAS-r score in further studies. We did not screen for spiritual needs, which usually is completed by the chaplain of our ward in an open dialogue. The strengths of our study include the application-friendliness of the PERS\(^\text{ON} \) Score in everyday clinical practice. The majority of patients showed symptom improvement after 7 days and at the day of discharge.

In conclusion, we introduce the PERS\(^\text{ON} \) Score as a new, easy to use symptom assessment score, which can be included in the everyday practice of Palliative Care Units. As an easily applicable scale, it may be used to guide treatment and help to rapidly improve symptoms.
