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Is patient self-reporting more accurate than clinician reporting of symptoms for predicting survival in patients with cancer? Meta-analysis of 30 closed EORTC Randomized Controlled Trials.

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BACKGROUND

One of the most prevalent questions asked when diagnosed with cancer is: 'How long will I live?'. Cancer related symptoms that affect Quality of Life (QOL) can provide predictive information in the survival prognosis of cancer patients.

The collection of symptoms has become a standard routine in oncology clinical trials. Interest has risen in incorporating patient-reported symptom outcomes in oncology research and determining the value added to clinician symptom monitoring through patient assessment in clinical trials. Accurate assessment should involve cooperation between clinician and patient. Current studies investigate the agreement between clinician versus patient reported outcomes. Patient reporting of symptoms could add to the current approach to symptom monitoring in cancer treatment trials.

OBJECTIVES

This study investigated whether patient self-reporting of symptoms improved prediction of survival when compared to clinician reporting or whether it provided an additive value when taken together with clinician assessment of the same symptoms.

PATIENTS AND DATA

Closed European Organisation for Research and Treatment of Cancer (EORTC) Randomized Controlled Trials (RCTs), where Health Related Quality of Life (HRQOL) was an endpoint, were selected for this study. Although several measures of self assessment are available, we focus in this study on the EORTC Quality of Life Core questionnaire (QLQ-C30).

The EORTC QLQ-C30

The EORTC QLQ-C30 is a questionnaire developed to assess the quality of life of cancer patients. The questionnaire is designed to measure cancer patients' physical, psychological and social functions. The questionnaire is composed of five multi-item scales (physical, role, social, emotional and cognitive functioning) and nine single items (pain, fatigue, financial impact, appetite loss, nausea/vomiting, diarrhea, constipation, sleep disturbance and quality of life). The EORTC QLQ-C30 is graded on a four-point ordinal scale from 1 'not at all' to 4 'very much'.

The principle for scoring the QLQ-C30 scale is to estimate the average of the items that contribute to the scale, whereby a high score for a symptom scale represents a high level of symptomatology/problems. A high score for a functional scale represents a high/healthy level of functioning and a high score for the global health status represents a high quality of life.

Symptom response was assessed by the clinician on an ordinal scale using the National Cancer Institute Common Toxicity Criteria (NCI-CTC) version 2.0.

Only patients with advanced cancer were included in this retrospective pooled analysis.

Clinician and patient symptom assessments were reported at entry into the study. Both patient and clinican data were obtained for six symptoms: pain, fatigue, vomiting, nausea, diarrhea and constipation. The number of trials and the number of patients included in the study for each available symptom are reported in Table 1.

TABLE 1
Number of trials and patients for each assessed symptom

	Pain	Fatigue	Vomiting	Nausea	Diarrhea	Constipation
Number of trials	8	5	5	6	6	4
Number of patients	1,214	1,237	824	1,393	815	751

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METHODS

A first statistical model was built with the clinical parameters age, World Health Organisation (WHO) performance status, gender, cancer site and symptom assessment by the clinician. A second model was built with the same clinical parameters including the patient reported symptoms.

The predicitve accuracy of both models was investigated with the Harrell's discrimination C-index. The C-index estimates the percentage of correct predictions, i.e. the percentage of patient pairs in which the predicted (according to the models) and observed outcomes are in agreement (discrimination). The interpretation of the C-index is similar to the classical correlation coefficient.

Difference between the two models (clinician vs. patient) was assessed with the Chi-square test.

RESULTS

Firstly, we have calculated the C-index to compare the predictive accuracy between the patient and the clinician assessment. Results showed that fatigue and constipation reported by the patients were significantly higher in predicting survival. The C-index and corresponding P-values are reported in Table 2.

TABLE 2
C-index and P-value for all six symptoms

	Pain	Fatigue	Vomiting	Nausea	Diarrhea	Constipation
C-index (patient vs. clinician)	0.59 vs. 0.58	0.59 vs. 0.55	0.55 vs. 0.52	0.54 vs. 0.52	0.51 vs. 0.52	0.57 vs. 0.52
P-value	0.171	<.001	0.216	0.512	0.492	0.034

Secondly, we investigated the patient and clinician assessment together versus clinician assessment alone. A combination of both assessments improved the predictive accuracy for pain, fatigue, vomiting, nausea and constipation. The C-index and corresponding P-values are reported in Table 3.

TABLE 3
C-index and P-value for all six symptoms

	Pain	Fatigue	Vomiting	Nausea	Diarrhea	Constipation
C-index (patient and clinician vs. clinician)	0.60 vs. 0.58	0.61 vs. 0.55	0.56 vs. 0.52	0.54 vs. 0.52	0.52 vs. 0.52	0.50 vs. 0.52
P-value	<.001	0.006	0.047	0.043	0.444	0.014

CONCLUSION

Our results suggest that patients' ratings of their own fatigue and constipation have more prognostic value than clinicians' ratings of these symptoms. Furthermore, the prognostic value of clinicians' ratings can be improved by combining them with patients' assessments for the symptoms pain, fatigue, constipation, nausea and vomiting.

This study confirms the importance of QOL data, preferably in conjunction with clinical reported symptoms, to improve the prediction of the length of survival. Additionally, a better understanding of a patient's own impressions can alter treatment decisions and consequently improve survival.