BACKGROUND

Patient assessment of health-related quality of life (HRQOL) in cancer clinical trials has increased over the years (Bottomley and Aaronson, 2007). However, we need a better understanding of how to interpret the results from such studies. The objective in this retrospective analysis was to determine the smallest changes in HRQOL scores on the European Organisation for Research and Treatment of Cancer quality of life questionnaire (EORTC QLQ-C30) which could be considered as clinically meaningful.

The EORTC QLQ-C30 is a questionnaire developed to assess quality of life in cancer patients. The questionnaire consists of multi-item scales; five functioning scales (physical, role, emotional, cognitive, and social), three symptom scales (fatigue, pain, and nausea/vomiting), and one global health status measure. The remaining single-item scales include dyspnea, appetite loss, sleep disturbance, constipation and diarrhea, and the perceived financial impact of the disease treatment. All scales range 0-100 and high scores on the global health status and functioning scales indicate better quality of life, while on the symptom scales they suggest worsening conditions, and therefore poorer quality of life.

PATIENTS

Two closed EORTC randomized controlled clinical trials enrolling in total 812 advanced non-small cell lung cancer (NSCLC) patients were merged and jointly analyzed in this study. The first trial was a three arm randomized study of two Cisplatin-based regimens and Paclitaxel plus Gemcitabine with an enrollment of 480 patients. The other trial was a randomized study of two Cisplatin-based combination chemotherapies involving 332 patients. In both trials, quality of life was collected using the EORTC QLQ-C30 (scale 0-100), was assessed in a longitudinal fashion; at baseline, during treatment, and on several follow-up occasions after end of treatment.

METHODS

An anchor-based approach (Lydick and Epstein, 1993), using World Health Organization performance status (PS, scale 0-4) as a clinical anchor in combination with a distribution-based technique (Cella et al., 2002) was applied. The HRQOL scales of interest were: physical (PF), social (SF), and role (RF) functioning, global health status (GHS), fatigue (FA) and pain (PA). Patients who had both HRQOL and PS scores on at least two time points were included, and the two most separated time points were chosen for analysis.

Changes of one category in PS between the two time points in question formed two groups; improvement and deterioration. Patients whose PS stayed the same formed the no change group. Corresponding changes in HRQOL scores were then classified into the ‘clinically meaningful’ anchor-defined groups. Analysis of variance (ANOVA) was used to assess if there existed any statistically significant differences at the 5% level in HRQOL score changes between the groups. The differences in the mean of HRQOL score changes between adjacent groups were obtained. Effect size, calculated as the difference divided by standard deviation (SD) at baseline was calculated. The appropriate SD was obtained from the pooled variance between adjacent groups. Adjacent group differences corresponding to an effect size of at least 0.20 (Cella et al., 2002) were used to estimate the minimal clinically important differences.

CONCLUSION

Our results suggest that in patients with advanced NSCLC undergoing treatment, the following estimates represent minimal clinically important differences on the EORTC QLQ-C30 scales; PF (7-10), SF (5-9), RF (9-14), GHS (5-9), FA (6-14) and PA (16). These estimates can be used to classify patients by changes in HRQOL and symptoms over time as well as to aid sample size determination and design for future studies. Further validation is still required in cancer patients with other diagnoses, and other anchors should be explored.

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