

Development of the Brief Functional Capacity Tool (BFCT): a brief instrument to identify functional capacity deficits in anemic cancer patients

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Origin of Study	USA
Type of Study	EVALUATION OF A SELF-REPORTED, PERFORMANCE-BASED MEASURE OF FUNCTIONAL CAPACITY
Objectives	Develop the Brief Functional Capacity Tool (BFCT), formerly referred to as the Functional Capacity Screening Tool (FCST), a short tool to identify functional capacity deficits related to fatigue in anemic cancer patients receiving chemotherapy using self-reported and performance-based measures of functional capacity.
Study Design	<p>Data were obtained from a multisite, open-label, single-arm, phase II trial of 3 $\mu\text{g}/\text{kg}$ of darbepoetin alfa (Aranesp) given every 2 weeks to anemic patients with nonmyeloid malignancies who received cyclic chemotherapy.</p> <p>Patients were randomized 1:1 to complete either the Fatigue Symptom Inventory (FSI) or the Brief Fatigue Inventory (BFI) plus a single item (“unusually tired or fatigued in the last week”).</p> <p>All patients also completed the Functional Assessment of Cancer Therapy–Fatigue (FACT–F) questionnaire and answered questions from the Medical Outcomes Study (MOS) physical-functioning scale.</p> <p>In addition, the Modified Harvard Step Test (MHST) was used as a performance-based measure of functional capacity to assess adjusted maximum oxygen uptake ($\text{VO}_{2\text{max}}$).</p> <p>The questionnaires and the MHST were completed at weeks 1 (baseline), 9, and 17 (end of study).</p>
Patients	<p>Patients were ≥ 18 years of age and had anemia (hemoglobin level ≤ 11 g/dL) due to cancer or chemotherapy. They were diagnosed with a nonmyeloid malignancy and received cyclic chemotherapy.</p> <p>In all, 1,588 patients were enrolled; 1,134 (mean age, 60.3 years; 68% female; 80% white) had baseline and at least 1 follow-up hemoglobin measurement and FACT–F assessment.</p> <p>A 401-patient subset (mean age, 56.4 years; 61% female; 75% white) also completed a full 3 minutes of at least 1 stage of the MHST and made up the group used to develop the BFCT.</p>
Observations	<p>Based upon findings that showed consistent predictions of change in FACT–F score, change in $\text{VO}_{2\text{max}}$, and the change in hemoglobin level, the final BFCT included eight items: “I feel weak all over,” “I feel tired,” “I must limit social activities because I am tired,” and “I have trouble starting things because I’m tired” (all FACT–F); “Limited climbing one flight of stairs” and “Limited climbing several flights of stairs” (both MOS); “Average level of fatigue” (FSI); and “Level of interference, relationship with others” (BFI).</p> <p>The construct validity was supported by correlations of BFCT with FSI ($r = 0.80, P < 0.0001$) and BFI ($r = 0.86, P < 0.0001$). There were also correlations between BFCT and energy ($r = 0.75, P < 0.0001$), productivity ($r = 0.72, P < 0.0001$), and hemoglobin level ($r = 0.24, P < 0.0001$).</p> <p>Limitations of the study were that the MHST was not administered consistently across sites and few</p>

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patients completed even the first stage of the MHST, which reduced the ability to examine relationships between patient self-report questions and adjusted VO_{2max} .

Conclusions

The BFCT is promising as a short screening tool to identify functional capacity deficits in cancer patients. It performed almost as well as, or better than, full versions of the instruments from which it was derived.

This instrument must be validated further in different cancer populations.

Discussion

Existing fatigue measures are long and often difficult to incorporate into clinical practice. These investigators sought to develop a short tool to identify functional capacity deficits related to fatigue in anemic cancer patients, using data from a large multicenter study of darbepoetin alfa therapy.

“Having a simple screening tool for fatigue is important because fatigue is often neglected,” Dr. Cella said. “It is easy for oncologists and nurses to think of fatigue as something more or less to be tolerated. Because it is a daily experience for many patients, fatigue is often absorbed into the whole treatment experience and patients can suffer because of this.”

The FCST screening tool identifies patients with extreme fatigue that exceeds “the normal limits,” even for cancer patients, Dr. Cella said. Clinicians can identify these patients and take measures to alleviate their symptoms.

The FCST was developed based on information gathered by multiple other fatigue assessment and physical functioning assessments. In the end, 8 items were identified for the FCST, which was later validated as a means of assessing functional capacity related to fatigue. FCST was highly correlated with hemoglobin level, energy, and productivity.

Explaining these correlations, Dr. Cella noted, “One of the best ways to identify ‘clinically significant’ fatigue is patients’ self-rating of their performance, relative to their usual standard. Patients do a good job of telling you if they are compromised, or less effective, than usual.”

Hemoglobin level is useful because it is easily measured as part of routine care. The value is a reasonably good indicator of clinically significant fatigue and can be effectively treated, he added.

The FCST is an effective screening tool for identifying functional capacity in cancer patients and thus recognizing those patients for whom fatigue is more than just a bother. It is quickly and easily completed by the patient, which makes it suitable for incorporating into clinical practice. According to Dr. Cella, the instrument will soon be published under its new label, the Brief Fatigue Questionnaire.

Key Points

- This instrument was reliable, easy to score, and quickly completed by patients, making it suitable for incorporation in clinical practice.

Reference

Cella D, Viswanathan H, Hays RD, et al. Development of the functional capacity screening tool (FCST): a brief instrument to identify functional capacity deficits in anemic cancer patients. Presented at the 42nd Annual Meeting of the American Society of Clinical Oncology; June 2–6, 2006; Atlanta, Georgia. Abstract 8593.