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Computerized symptom assessment in palliative care – current status of the PAT-C project

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Background

- Palliative care patients have various subjective symptoms: often more than five at the time
- We have to assess the maximum of symptoms and minimize the burden of the patients
- Low consistency on how to measure subjective symptoms makes comparisons difficult
- An international tool for symptom assessment will advance clinical care and research
- Hand-held bedside computer technology and item response theory (IRT) might facilitate this

Overall objective

To develop a comprehensive computer-based tool for assessment of symptoms and functioning in palliative care, the Palliative Assessment Tool – computerized (PAT-C)

International collaboration

The EAPC Research Network expert group: Carl Johan Fürst, Franco De Conno, Philippe Poulain, Augusto Caraceni, Lukas Radbruch, Geoffrey Hanks

Item Response Theory (IRT) and Computer Adaptive Testing (CAT)

- IRT is a mathematical model for item calibration
- A calibrated item pool allows for a prediction of answers to items not even asked
- This yields individually tailored questionnaires with better sensitivity and precision
- A computer is programmed to select and present the most appropriate items on a touch screen monitor
- The score will be calculated and presented immediately

A systematic approach

I. Determination of the content of the measure within each symptom area

II. Generation of specific item pools, with individual research protocols

III. Systematic reviews were performed, items were selected according to a standardised procedure, including the use of international expert panels

Current standing

A national multi-centre study for field testing of the current prototype of the tool is now being launched including :

pain, physical function (PF) and cognitive function (CF)

The prototype is developed on the basis of clinical studies on pain and CF and ongoing studies on pain and PF.

Methodology

The PAT-C project consists of a stepwise development of the software program and its content. As part of this testing, data will be collected for content evaluation of scales and single items

Study objectives

- To collect data on pain, PF and CF for further development of the item pool
- To evaluate the software for development of the next software version
- To evaluate the computer based system for patient data collection
- To test the user friendliness of computerized symptom assessment

Software development and programming

A continuous evaluation of the human-computer interaction issues will be performed.

The graphical user interface will be adapted to overcome limitations of age, poor eyesight, or limited dexterity:

- the use of touch sensitive PC tablets
- strong contrast between background and text
- use of large bold fonts, with large boxes for tapping the responses
- the questions displayed on the screen one at a time
- the possibility to go back and review or correct the responses

Material and methods

A convenience sample of patients from most Norwegian palliative care units and some pain clinics will be included during the six months study period.

These represent national geographic diversity and different levels of specialized palliative care.

Patients will enter data on:

- the items on pain, PF, depression, the ESAS

Health care providers enter data on:

- medical variables, CF, Karnofsky

Statistical analyses

The IRT will help to:

- identify poor items that are candidates for removal
- indicate item gaps in the coverage of the spectrum
- provide the difficulty estimates that are required for dynamic selection of the CAT items

However, selection and development of the content will not depend on the IRT alone. The vast clinical experience of our group will determine the case and content validity of the items and as such their relevance to the clinical situation