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LETTER TO THE EDITOR

THE CHALLENGE OF ASSESSMENT IN REHABILITATION

We read with interest the paper of Hill et al. (1), who addresses some relevant questions about functional assessment in rehabilitation. In particular, they question the content of assessment for patients with brachial plexus injury. This is interesting because, during the publication process, authors are regularly challenged about their data processing methods and statistical analyses. However, they are rarely challenged about what they measure and how they measure it.

Functional assessment is essential in rehabilitation, in clinical practice to establish a rehabilitation plan, and in clinical research to objectify the effects of a therapeutic intervention. It is now commonly accepted that the assessment should follow the framework of the International Classification of Functioning, Disability and Health (ICF) (www.who.int/classifications/icf). Assessing its first domain (Body functions and Structures) is common practice across all medical specialities (e.g. through assessment of blood pressure, glycaemia, muscle strength, pain, etc.). Assessing its second and third domains (Activity; and Participation) is less common in medicine, but fundamental in rehabilitation. Indeed, the final purpose of rehabilitation is to improve patients' functioning, i.e. the activities that patients perform in their environment, and their participation in social life.

Each ICF domain should be separately and specifically assessed, in order to obtain a comprehensive assessment of the patient. Multidimensional questionnaires that simultaneously assess several domains should be avoided, as they could give misleading results. Hill et al. (1) clearly explain this limitation for the Disabilities of Arm, Shoulder and Hand scale (DASH), although this is not an isolated case. For example, the Disability Assessment Scale (DAS), developed to assess spastic stroke patients, also covers several ICF domains. The total score is determined by the sum of points given as a function of limb position and pain (first ICF domain) and of washing and dressing ability (second ICF domain). A modification of the total score may thus not be related to an improvement in the activities that the patient is able to perform, despite the word "disability" in the name of this scale.

Hill et al. (1) raise some questions about the face and content validity of the assessment tools. Existing scales, as ABILHAND, may not reflect all relevant activities for patients presenting with a brachial plexus injury. Indeed, the ABILHAND questionnaire, a patient-related outcome measure, would not assess all relevant activities for their patients. However, several explanations may be put forward. First, Penta et al. (2) drew up their initial list of 57 activities from existing scales and with clinician advice, without questioning patients. Subsequent Rasch analysis led to 9 activities being disregarded and 46 retained in the final validated ABILHAND questionnaire. Secondly, the version of the ABILHAND questionnaire used by Hill et al. (1) was developed for patients with rheumatoid arthritis after wrist arthrodesis. Later, the same team validated ABILHAND for other pathologies, and showed that the activities tested and their difficulty are disease specific (3). Thirdly, the Rasch model requires that the patient's answers are determined only by his or her manual ability and the difficulty of the activities. The activities "Moving around" and "Driving", retained by Hill et al. (1), were not included in ABILHAND, probably because the ability to perform them is also determined by the functioning of the lower limbs. Finally, it is likely that manual activities related to non-verbal messages would not pass the Rasch analysis because they are dependent on age, sex, cultural context, hand dominance, etc. The quality of an assessment tool is determined by its face and content validity, but also by other psychometric qualities determined, for instance, by Rasch analysis.

In unilateral pathologies, such as brachial plexus injury or stroke, it is of value to assess how the patient performs manual activities (4). Is the affected arm actively involved, alone or with the unaffected arm? Or is the affected arm passive, the action being performed by the unaffected arm or by a caregiver? Thus, combining several outcome measures could be an interesting option. For instance, the combined use of ABILHAND and the Box and Block Test would allow, on the one hand, the assessment of global patient manual ability in daily living and, in the other hand, the assessment of specific manual ability of the affected arm. An improvement in the manual dexterity of the affected hand does not always result in an increase in bimanual activities in daily living (5).

Future studies should pay greater attention to the content and methods of functional assessment in rehabilitation. ICF-based, Rasch-built patient-related outcome measures should be recommended.

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