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Quality of life after intensive care with the sickness impact profile

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Abstract Objectives: a) to validate the structure of the Sickness Impact Profile scale (SIP) when applied to intensive care patients after discharge from the hospital; b) to explore the influence of age upon the various components of quality of life.

Design: Prospective study.
Setting: Patients admitted to 36 Dutch ICUs.
Methods: 6247 patients out of 13 000 consecutive admissions to the ICUs answered a SIP questionnaire 6 months after discharge from the hospital. The 3655 returned questionnaires were analyzed after aggregating the respondents into 6 age groups: from group 1: 17–29 up to group 4: > 70 years of age.

Results: The total SIP-score oscillated between 5.8±8.2 (group 1) and 10.5±9.5 (group 4). Group 3 had also a high score (9.4±11.2). Overall, the quality of life of patients was dominated by dysfunction on the categories composing the physical dimension, with exception of patients with ages between 30 and 50 years, in which dysfunction on the categories composing the psychosocial dimension was dominant. The structure of the SIP in the study was similar to that described to the original instrument.

Conclusions: The study validated the use of the SIP QOL-instrument on patients after intensive care. Age influenced consistently the various components of quality of life.

Key words Intensive care · Quality of life · Sickness impact profile · Age

Introduction

Next to survival, quality of life (QOL) is an important parameter when assessing the effectiveness of Intensive Care Units (ICUs) [1]. Although many instruments have been devised [2], the measurement of QOL after discharge from the hospital is not yet an usual procedure in the common practice. Besides economic and pragmatic difficulties related with obtaining data from patients both at admission and after discharge, important reasons for not measuring QOL may be the existing lack of consensus over the instruments to be used and over the meaningful interpretation of their results.

Many of the scales available refer exclusively to physical status without considering psychosocial components of well-being. Therefore, it may be rightfully argued that these scales do not really measure QOL. The Sickness Impact Profile scale (SIP) associates the measurement of relevant components of both dimensions [3]. However, although the instrument is gaining increasing interest from researchers, it was only applied to small samples of ICU patients [4, 5].

From January 1990 to June 1992 a Dutch Intensive Care study was performed to assess the organization and cost-effectiveness of ICUs in the Netherlands. The design of the study followed the general system theory: inputs –
case-mix, workload, technology, and financial resources; throughputs – organization and production process; outputs – mortality and quality of life. 36 ICUs, of university and non-university hospitals spread in the country, representing 21% (317 beds) of the total Dutch intensive care capacity participated in the study [6]. The SIP scale was used in the Dutch study to assess QOL of the patients after discharge of the ICUs, resulting in a large data base of QOL after intensive care in the Netherlands. This paper concerns the analysis of the pooled QOL data, with two goals in view: a) to test the validity of the SIP scale structure in a large ICU group of patients; b) to explore the patterns of the SIP structure in ICU patients and to analyse whether these might be related to age.

Patients and methods

During the first six months of 1990, 13000 consecutive patients admitted to the Dutch ICUs were enrolled. After discharge from the hospital, 6424 patients were eligible for participation in the quality of life study, which has been completed by 3655 patients. Excluded from the study were those patients who were younger than 16 years and those who stayed in the ICU for a period smaller than 24 h.

Mortality in the hospital was collected from the hospital records. After discharge, information concerning mortality was collected from the family physician of each patient. After obtaining this information, the quality of life questionnaire (SIP scale) was mailed to the patients and self-administered, after a phone call for obtaining their informed consent. The study was approved by the Ethical Committees of the involved hospitals.

Instruments used in the study

Severity of illness was measured with the acute physiology and chronic health evaluation (Apache II) [7]; daily workload with the therapeutic intervention scoring system (TISS) [8].

The quality of life after discharge was measured with the sickness impact profile (SIP) [3]. The SIP is a multidimensional and cumulative health index, consisting of a list of 136 questions, divided into 12 categories (displayed on Table 2). Three of these categories (ambulation, mobility and body care) can be aggregated into the physical dimension. The categories “social interactions”, “alertness behavior”, “emotional behavior” and “communication” can be aggregated into the psychosocial dimension. The other five are independent categories: “sleep and rest”, “eating”, “work”, “home management” and “recreation and pastimes”. Each category concerns one specific area of the daily activity, and the answer to each question describes the (dys)function concerning one component of the daily activity.

The SIP questionnaire explores changes in the daily activity. Each of the 136 questions is an objective statement such as: “I am not going into town”. Important questions are: a) “If you are retired, was your retirement related to your health”; b) “If your are not retired but not working, is this related to your health”. If the patient responds affirmatively to one of these questions the statement “I am not working at all” has to be checked. A very high scale values was attributed to this statement, adjusting to the fact that when one of the two questions above regarding retirement applies no other work item can be checked.

The very comprehensive questionnaire can be completed either by an interview of self-administered [3, 5]. A dysfunction score is attributed to each question. Total SIP and individual categories’ dysfunction-scores can be separately computed, and the resultant dysfunction is expressed as a percentage of the sum of the weights of the affirmatively checked statements, divided by the sum of all factor weights under analysis (total SIP or any given part of it). In this way, the analysis of dysfunction can be focussed on the various categories (and dimensions) of the overall SIP score. The complete list of questions and the respective weights can be obtained from the authors of the instrument on request [3].

This questionnaire has been translated into Dutch, and validated [9]. Because of the nature of the index, SIP can only be administered to patients over 16 years old.

Analysis of data

For the analysis of the collected data the patients were divided according to their age into six groups: group 1 – 17–29 years (n = 242); group 2 – 30–39 years (n = 192); group 3 – 40–40 years (n = 347); group 4 – 50–59 years (637); group 5 – 60–69 years (n = 1149) and group 6 – > 70 years of age (n = 1088).

The comparison of sample mean values, between continuous variables, were analyzed utilizing the Student’s two sample t-test and the analysis of variance (ANOVA) with the Scheffé test for multiple comparisons. The differences between two sample means was considered significant for p values < 0.05. Correlation between variable values was evaluated with the Pearson’s correlation test. Correlations were considered for r>0.4 and ρ<0.05.

Exploratory factor analysis was utilized to study the score structure of quality of life in the different groups of patients in the study population. It should be remembered that the Factor Analysis is a multivariable analysis exclusively with an explorative value, aiming to analyze the interrelationships among a set of variables [10]. When utilizing the orthogonal rotation, as used in the analysis, the identified factors, or dimensions, will tend to be independent among them. Factor-loadings were accepted when r>0.4.

The statistical calculations in the study, including randomizations, were performed utilizing the Statistical Package for Social Sciences, SPSS-X, version 3.0, at the University of Groningen.

Results

Quality of life after intensive care was evaluated by 6247 patients alive one year after discharge of 36 Dutch ICUs, utilising the Sickness Impact Profile questionnaire. There were 3655 patients (58.5%) responding to the questionnaire and 2529 (41.5%) who did not.