

ORIGINAL ARTICLE

What is the life quality of the patients who have gone through intensive care?

Blanka ŠESTÁKOVÁ, Alexandra ŽIDKOVÁ, Iveta TÝBLOVÁ, Michaela TYMKIVOVÁ

Department of Anaesthesiology and Intensive Care, University Hospital in Pilsen, Czech Republic.

Correspondence to: PhDr. Blanka Šestáková, Department of Anaesthesiology and Intensive Care, University Hospital in Pilsen, Czech Republic; E-MAIL: sestakova@fnplzen.cz; zidkova@fnplzen.cz

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Abstract

We have taken an interest in problems of quality of life because we had some feedback from our one-time patients in the anaesthesiology and resuscitation ward and we know how their quality of life significantly changes after overcoming an imminent and serious danger to life due to which they had been treated in our ward. Their experiences made us deal with the problems of those individuals. We have made up a questionnaire set that should give us information on difficulties on their return to the ordinary life. The results were compared with the indices of survival, age and length of hospitalization. Our experiment has validated the dependence of anxiety feelings on individual's premorbid predispositions. The higher the anxiety level before hospitalisation is, the higher the occurrence of depression and psychosomatics in the period after hospitalization in the ICU. Next, it has been verified that the pathological changes in perception of one's own reality depend on the duration of hospital stay in the ICU.

Our outcomes and findings further affirm that psychological or/and psychiatric care following the experienced imminent and serious danger to the individual's life is really necessary, and that these people need a specialist who would guide them during their adaptation to their ordinary life (Detmar *et al* 2002).

INTRODUCTION

Studies pursuing the outcome from the intensive care unit (ICU) indicate (even though some of them mostly inform about morbidity) that there are only a few published works that focus on the recovery process intimately or on long-term residual consequences of any kind of a critical disorder.

The recovery process can be understood as a source of physical, mental and social difficulties for both the patients and their families. This process can usually go on for several months or even years. The patients who have gone through intensive care often suffered from an extreme disorder; they also had a high risk of death

(the average value of APACHE II – 24.1) and were provided with expensive care.

METHODS

A retrospective study – 484 probands who had been hospitalized at the Department of Anaesthesiology and Intensive Care, University Hospital in Pilsen, the Czech Republic, from Jan 1, 1999 to Dec 31, 2004 were contacted and sent mail questionnaires. The survey included the Euro QoL 5D questionnaire (before their hospitalization in the ICU and 1 year after it), MHQ, and STAI questionnaires (1 year after their hospitalization in the ICU).

Diagnosis	Number of Patients
Polytrauma T07	124
Sepsis A 419	20
Respiratory failure J960	29
Acute pancreatitis K 850	11
Others (poisoning, cerebral haemorrhage)	10

UPV- APACHE II – ISS- SOFA (Ševčík et al 2000).

UPV (days)	11.62
APACHE II	24.1
ISS	25.05
SOFA	7.5

UPV – artificial pulmonary ventilation

APACHE II – the scoring system measuring the deviation of the physiological functions from the mean, the higher the score is (0–71), the higher the probability of death.

ISS – Injury Severity Score – the scoring system to evaluate the anatomical importance of traumas, in use since 1974

SOFA – Sepsis Related Organ Failure Assessment, the scoring system to define the strength or the degree of the organ dysfunction.

PROTOCOL

Males and females aged 16–65, with the length of stay in the ICU for more than 72 hours.

Participation in the study: 328 males and 155 females. 194 received answers (42 questionnaires undeliverable, 14 patients died, 233 probands did not answer). The individual patients were of surgical and internal types, with the prevalence of the surgical one.

METHODS

EuroQoL (Group.Euro – a new facility for the measurement of health – related quality of life (The EuroQol group 1990).

This general questionnaire defines health in terms of five dimensions: mobility, self-service, usual activi-

ties, pain and discomfort and anxiety, and depression. Each dimension is divided into three separate categories, depending on whether the respondent has no difficulties, whether he or she has average difficulties or extreme difficulties. One (1) as the referential number was used for the healthy population without any difficulties concerning all dimensions. The questionnaire was validated and used in broad groups of patients in many studies.

STAI State Trait Anxiety Inventory, USA – Spielberg, Muller, Ruisel, Farkas – (Mindgarden 2008)

STAI was formerly used for studying anxiety in an adult age. It is a self-descriptive questionnaire that includes separate measures – of the situational and personal anxiety. The situational anxiety is defined by the authors as “the momentary emotional state of the human organism, which is characterized by the subjective, consciously perceived feelings of tension and worries, and also by an increased activity of the autonomous nervous system. The situational anxiety can change in time and can be of varying intensity. On the other hand, the personal anxiety is defined as “relatively stable individual differences with tendency to anxiety” and shows the overall tendency of an individual to react to the stimuli from his or her surroundings.

Scoring and norms: the interpretation: a high score means higher situational and personal anxiety, a lower score means a lower occurrence of situational and personal anxiety in an individual. Both percentiles and standard scores can be used for male as well as female working populations in the three age groups (19–39, 40–49, 50–69); the borderline score is 50.

MHQ Middlesex Hospital Questionnaire, GB, London – Crown, Crispen, Hanzlíček

This is a questionnaire consisting of 48 questions, to which the answers are written. The answers can be applied to the questions. It can be used for various intelligence levels. By adding up the result numbers, it is possible to get a score that shows the level of overall emotionality or “neuroticism”, along with the profile of 6 sub-test scores. Those 6 sub-tests measure anxiety,

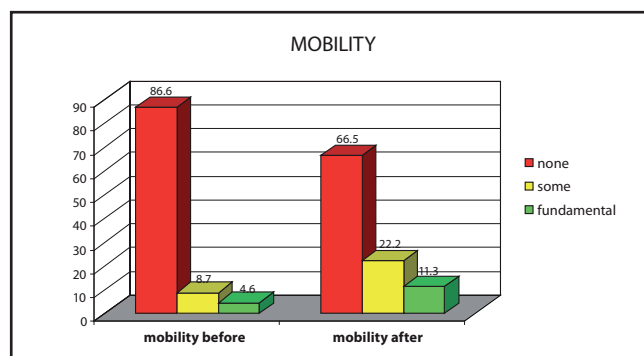


Fig. 1. Mobility before and after hospitalization. Data presented as percentages.

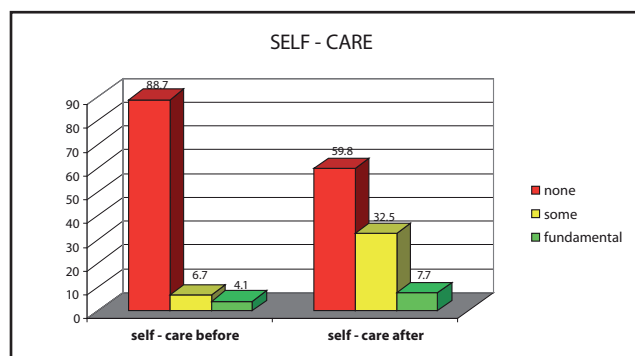


Fig. 2. Self-care before and after hospitalization. Data presented as percentages.

phobia, obsession, somatic fear projection, depression, hysteria, and then there is the “lying score”. The “lying score” can be characterized as the level of subjective dissimulation of a concrete actual health status. Each of those sub-test dimensions is measured by 8 different questions. To hide the purpose of those 8 questions, the probands have the impression of their coincidental occurrence in the questionnaire.

Statistics

The descriptive statistical methods were used to check the variables. The data were collected through the Kolmogorov-Smirnov test. The null hypothesis concerning the variety of the life quality before and after hospitalization in the intensive care unit was verified by the Wilcoxon pair test. Frequency data were analyzed by the χ^2 test. The results of the tests used were described as the probability data. For all the above-mentioned tests, the level of significance was $p < 0.05$. According to the variables’ distribution, the values were expressed as the median and as the inter-quartile range (IQR) or as the mean and the standard deviation (\pm SD). In case of the normal data distribution, the dependence of variables concerning the life quality was tested by the multiple regression. To evaluate the relationship between the parameters of our interest that are needed to predict the impaired quality of life after hospitalization in the intensive care unit, the multiple logic regression was used. The probability of influencing life quality was expressed by the odds ratio (OR) and 95% of credibility interval (CI). The statistical evaluation was carried out by use of the statistical software MedCalc®, Version 7.1.0.0. (Frank Schoonjans, MedCalc Software, Broekstraat 52, 9030 Mariakerke, Belgium).

DISCUSSION

Before the above mentioned survey was carried out, we had found out, by means of a pilot study from 1999 (50 probands), a high occurrence of psychotrauma after the intensive care experience, related to the Post Traumatic Stress Disorder (PTSD). Influenced by this pilot study outcome, we decided to investigate this issue further by means of a retrospective study including a higher number of probands to verify or falsify the hypothesis of the high occurrence of the PTSD in the population of patients one year after their hospitalization in the intensive care unit.

CONCLUSION

The multiple regression analysis implied that the patients from the intensive care unit who had had a higher anxiety level before their hospitalization in the ICU had also a higher anxiety rate after hospitalization, i.e. 1 year after their discharge from the ICU (the STAI test, $p = 0.002$). No relationship was found between the anxiety level (STAI) before the illness and the occur-

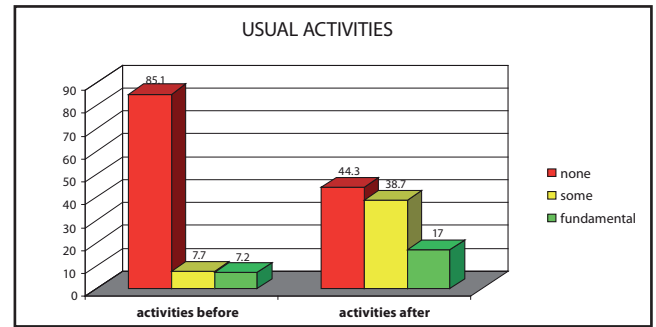


Fig. 3. Usual activities before and after hospitalisation. Data presented as percentages.

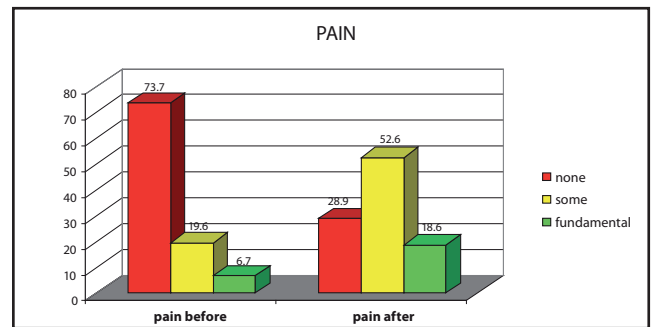


Fig. 4. Pain before and after hospitalization. Data presented as percentages.

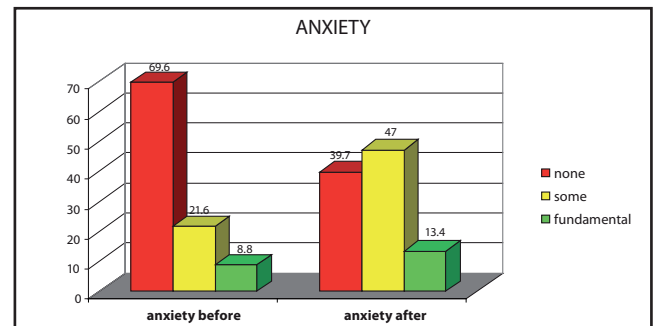


Fig. 5. Anxiety before and after hospitalization. Data presented as percentages.

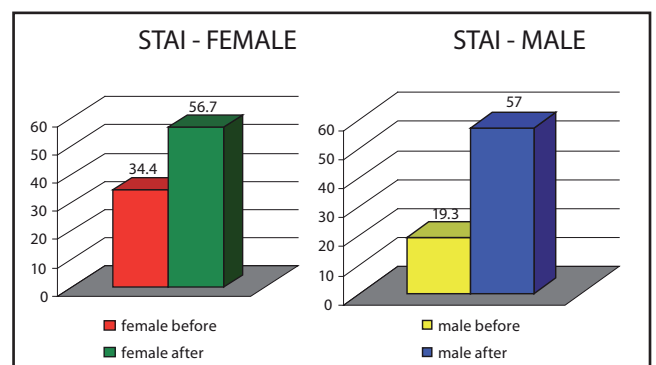


Fig. 6. State Trait Anxiety Inventory (STAI) in males and females before and after hospitalization. Data presented as percentages.

rence of pathological perception of reality (MHQ – LS – “lying score”) after hospitalization in the ICU. It has also been found out, by the MHQ-A test ($p=0.001$), that the group with the higher risk of anxiety before hospitalization in the intensive care unit (the STAI test) had a significantly higher occurrence of anxiety after hospitalization in the ICU. In the group with the higher risk of anxiety before the illness (the STAI test) there is a higher risk of developing depression after their hospitalization in the intensive care unit (the MHQ-D test) ($p<0.001$). It has been found out that the higher the anxiety level (the STAI test) before hospitalization in the intensive care unit was, the higher the occurrence of phobia after hospitalization in the ICU (MHQ-F) ($p=0.013$). By means of the multiple regression analysis, the dependence of results on the variables was not confirmed (APACHE, UPV time, LOS, SOFA admission, SOFA max).

By a simple regression analysis, it has been found out that the higher the anxiety level before the illness was (the STAI test), the higher the anxiety level after hospitalization in the intensive care unit (the STAI test) ($P 0.003$), and the higher the quality of life before the illness was (the EQL 5D test), the lower the anxiety level after hospitalization in the ICU ($p=0.014$). The higher quality of life before the illness (the EQL 5D test) meant the lower anxiety level (MHQ-A) after the ICU hospitalization ($p=0.006$). There was a relationship between a higher age and occurrence of depressions (MHQ-D) in the time after their hospitalisation in the ICU ($p=0.024$). The higher the quality of life before the illness was (the EQL5D test), the lower the occurrence of depression (the MHQ-D test) in the time after their hospitalisation in the ICU ($p=0.007$). It has also been found out that the higher the anxiety level before the illness was (the STAI test), the higher the occurrence of depression (the MHQ-D test) during the time after hospitalisation in the ICU ($p<0.001$). The results indicate that the higher anxiety level before the illness (the STAI test), before hospitalization in the ICU, is connected with the higher occurrence of phobias (the MHQ-F test) after hospitalization in the ICU ($p<0.001$), and the higher anxiety level (the STAI test) before hospitalization in the ICU means a higher somatic projection of the psychic problems (MHQ-SP) after hospitalization in the intensive care unit ($p<0.001$). The longer the hospitalization in the ICU was (LOS), the higher the probability of occurrence of pathological perception of one's own reality (MHQ-LS) ($p=0.068$). It has also been found out that the higher SOFA meant the higher level of pathological

perception of one's own reality in the post-ICU phase (MHQ-LS) ($p=0.058$).

By means of the multiple logic regression, it has been found out, in the whole sample, that the higher EQL score before hospitalization implies a higher score in all tasks of EQL afterwards, with the exception of EQL2 after (self-service) ($p=0.0395$). A higher age means a higher EQL4 after score (pain and discomfort) ($p=0.0111$) and the higher age also implies a higher EQL5 after score (anxiety and depression) ($p=0.0070$).

By the multiple regression analysis, no relationship of the aforementioned dependent variables on the age, APACHE II, length of UPV, LOS and SOFA max. has been discovered. By means of the multiple logic regression of the separate tasks of the Euro QoL 5D test, the following facts were ascertained in the group of traumatised patients: EQL1 after – no relationship to other variables was found, EQL2 after – no relationship to other variables was found, EQL3 after – no relationship to other variables was found; there is a dependency between the EQL 4 after and the UPV time ($p=0.0324$, the significant level of $p=0.0286$), there is a dependency of EQL 5 after on the EQL sum before ($p=0.0171$, the significant level of $p=0.0039$); there is no relationship of individual tasks of the EQL to the age, the value of the TISSu, APACHE II, the length of stay (LOS), the value of SOFA adm., SOFA max., STAI before hospitalization. Psychological interventions must become an integral part of a recovery process in the intensive care unit for the well-being of patients as well as their relatives. It is very important to have a good and educated psychologist in the ICU team (Kiessling & Henriksson 2004; Detmar *et al* 2002).

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