

Does a Personalized Approach Improve Patient Satisfaction in Thoracic Oncology?

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Ever since quality management systems have begun to be applied to healthcare processes, patient satisfaction has become an increasingly important parameter in measuring the quality of healthcare.^{1,4} Although data on patient satisfaction and its determinants still are limited,^{5,7} the patient's relationship with doctors and nurses has been shown to be crucial^{8,9} compared with other variables, which depend more on patient, institutional, and cultural factors.¹⁰

It is an indisputable fact that every unsatisfied patient represents a failure in the system administering the treatment. This failure is not generally related to the technical quality of administered care¹¹ but rather to a mismatch between overall patient needs and received care.

The traditional approach to patients used by medical and nursing staff focuses primarily on clinical aspects. Therefore, the multidimensional consequences of the disease on the patient's life (eg, social, economic, and psychological effects) often are not actively analyzed because of lack of time and lack of standardization of clinical pathways, which increases the risk of overlooking potentially critical areas during patient diagnosis and care.

The theoretical solution is to standardize a personalized approach, an oxymoron that is difficult to apply in daily practice. A potential solution could be improvement of the information collection process at admission, providing the basis for development of a more individualized approach.

Quality of life (QOL) is a personal and multidimensional judgment, incorporating all the aspects that affect a person's life—including clinical status, psychological stress, and socioeconomic status—and is based on the patient's point of view.¹² The aim of this study was to test the hypothesis that a standardized multidimensional evaluation of patients' QOL at admission may improve the detection of critical areas and facilitate a personalized plan of care, enabling systematic management of these problems and, as a final result, improving patient satisfaction with received care.

PATIENTS AND METHODS

The trial was designed as a pilot study, which began on January 1, 2007, and ended on December 31, 2007. The population was composed of all patients who (1) were admitted to the Thoracic Surgery Department of a tertiary referral cancer center as candidates for a surgical procedure with diagnostic or curative intent, (2) were

Objective: To evaluate patients' quality of life (QOL) at admission to permit definition and implementation of a personalized plan of multidimensional care.

Methods: In 2007, patients hospitalized for more than 24 hours at the Thoracic Surgery Department of a tertiary referral cancer center received QOL assessment at admission by European Organization for Research and Treatment of Cancer (EORTC) questionnaires QLQ-C30 and LC13. Patients were asked to anonymously express their satisfaction with care at discharge by using the EORTC IN-PATSAT32 questionnaire. During the second part of the study (July-December 2007), specific interventions were proposed in critical areas identified by the questionnaires.

Results: During 2007, 898 patients completed QOL assessment at admission and 805 patients anonymously expressed their satisfaction with care at discharge. Overall patient satisfaction significantly improved in the second part of the study (85.4 ± 16.7 vs 91.9 ± 13.1 ; $P = .009$). The most significant improvement was recorded in nurses' information provision (67.7 ± 24.1 vs 80.2 ± 20.2 ; $P = .0014$) and availability (70.4 ± 22.8 vs 84.3 ± 19.2 ; $P < .001$). Surprisingly, the third-ranking improvement was recorded for the hospital access scale, which was the item with the lowest score in both periods and for which no specific modification occurred during the study period.

Conclusions: Use of a simple and reliable evaluation of QOL at admission contributed to improved quality of administered care. This approach permits focused management of ongoing problems, close cooperation between caregivers, and a more flexible response to patient needs.

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Take-Away Points

Quality-of-life evaluation is useful in defining a personalized approach at hospital admission.

- Among cancer patients hospitalized for more than 24 hours, satisfaction with doctors, nurses, and hospital improved, even when baseline scores had been satisfactory.
- The best improvements were recorded for patients with worse scores at baseline.
- Scores on the hospital access scale improved more than 10% even though no specific structural measure had been taken during the study period.

hospitalized for at least 24 hours, and (3) gave their written consent. The Institutional Ethics Committee was informed of the study and the necessity of formal approval was waived. All patients had a QOL assessment at admission and were asked to anonymously express their satisfaction with care at discharge.

Quality of Life at Admission

Quality-of-life assessment was performed using the European Organisation for Research and Treatment of Cancer (EORTC) questionnaires QLQ-C30 and LC13.¹³ The QLQ-C30 assessment focused on global QOL, functional domains (physical, role, emotional, cognitive, and social), and 8 symptoms (fatigue, nausea and vomiting, pain, dyspnea, insomnia, appetite loss, constipation, and diarrhea). The LC13 is composed of a multi-item scale focused on dyspnea and single items assessing pain, cough, sore mouth, dysphagia, neuropathy, alopecia, and hemoptysis. High scores for the functional and overall QOL scales in the QLQ-C30 indicate a higher/healthier level. High scores for the symptom scales represent a higher level of symptoms/problems. Missing items were managed following EORTC Quality of Life Group guidelines.¹⁴ The questionnaire was explained and administered by the nursing staff at the time of first interview and was collected a few hours later.

Intervention

During the first 6 months (January-June 2007, period A), physicians and nurses used standardized interviews at admission that were focused on autonomy, past and present clinical history, use of pharmaceutical drugs, smoking habits, symptoms, planned operation, and informed consent. As long as critical areas were detected in domains other than the clinical one, specific interventions were planned. For patients unable to attend to themselves at discharge and without family support, nurse home support was supplied; in the case of reported sleep difficulties, treatment was initiated or the preexisting treatment modified; psychological counseling was planned at patients' request; and administrative counseling for disability pension or prescription drug vouchers was proposed for patients reporting economic problems.

During the following 6 months (July-December 2007, period B), specific interventions were planned according to

findings of an analysis performed in 2006 to test discrepancies between critical areas detected by the QOL questionnaires and the standard interview. Results from 100 consecutive cases in a previous study showed that the domains of autonomy, sleep problems, psychological distress, economic difficulties, and overall poor QOL were unreported in 15% of patients when QOL assessment was not used.

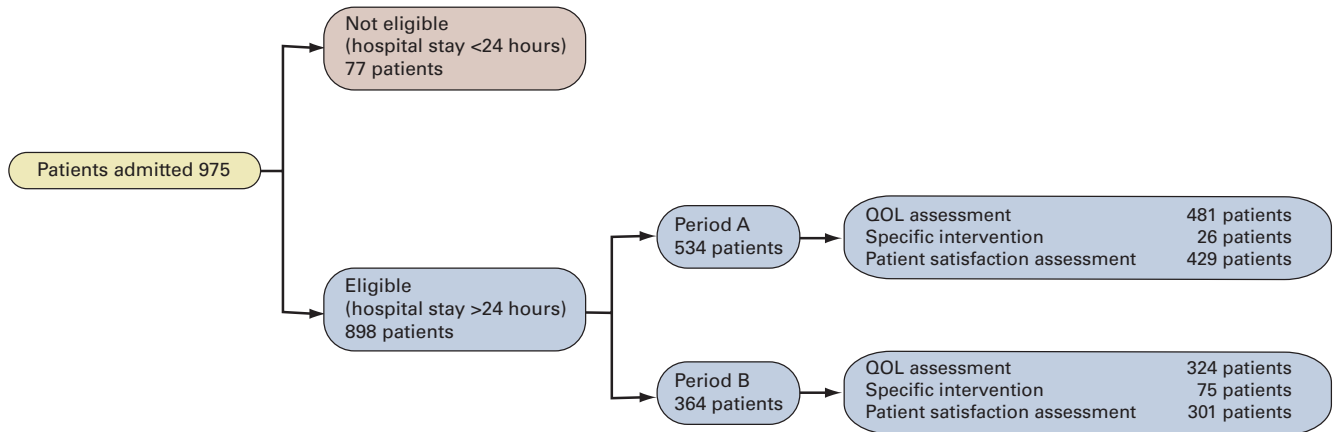
Therefore, these areas represented the focus of the current study, assuming the 20th percentile of the previous study as the current cut-off value. Interventions were planned as follows: (1) nurse home support in cases with preoperative limited autonomy (total score ≥ 6 in autonomy items 3-5) and without family support; (2) benzodiazepine treatment or specialist advice for patients who had a score of 3 or 4 in item 11 (sleep); (3) psychological counseling proposed for patients with a total score of 12 or more on items 20-25; (4) administrative counseling for disability pension or prescription drug vouchers proposed for patients with a score of 3 or 4 on item 28 (economic problems); and (5) an additional interview with 1 senior staff surgeon for patients with a total score of 8 or lower on items 29 and 30 (overall QOL) without any evident explanatory cause.

Satisfaction With Care

During the entire period of the study, patient satisfaction with care was assessed by the EORTC IN-PATSAT32 questionnaire,¹⁰ which consists of 32 questions evaluating satisfaction with doctors (items 1-11), nurses (items 12-22), and hospital (items 23-31) and a final question on overall satisfaction (item 32).

In this questionnaire a "poor," "fair," "good," "very good," or "excellent" response scale is used to rate each aspect of care. All scores were linearly transformed to a 0-100 scale. A higher score reflects a higher level of satisfaction. The EORTC IN-PATSAT32 contains 11 multi-item and 3 single-item scales. These include physicians' technical skills (SATDTS, items 1-3), interpersonal skills (SATDIS, items 4-6), information provision (SATDIP, items 7-9), and availability (SATDAV, items 10 and 11) scales; nurses' technical skills (SATNTS, items 12-14), interpersonal skills (SATNIS, items 15-17), information provision (SATNIP, items 18-20), and availability (SATNAV, items 21 and 22) scales; the exchange of information single-item scale (SATEXC, item 23); the other hospital staff interpersonal skills and information provision scale (SATOTH, items 24-26); the waiting time scale (SATWAI, items 27 and 28); the hospital access scale (SATACC, items 29 and 30); and the comfort single-item scale (SATCOM,

■ **Figure.** Study Patient Flow



QOL indicates quality of life.

item 31). Patients were asked to anonymously complete the questionnaire, seal it in an unmarked envelope, and submit it upon leaving the hospital.

The primary end point of the study was to analyze the modification of scoring in EORTC IN-PATSAT32, SATGEN, item 32. (“How would you rate the care received during your hospital stay?”) in period B (July-December 2007) compared with period A (January-June 2007).

Statistical Analysis

Ten variables (sex, age, preoperative respiratory function, American Society Anesthesiologists score, neoadjuvant treatments, diagnosis at admission, type of surgery, postoperative complications, intensive care unit [ICU] stay, and readmission within 30 days) and data from the EORTC QOL questionnaires were used to establish homogeneity between groups, in order to identify potential differences. Data from QOL questionnaire scores were standardized by linear transformation (range 0-100), with 100 representing the best results in terms of global QOL and function scales and the worst results in terms of symptoms scales. The difference was considered statistically significant if the associated *P* value was $\leq .05$. Missing data were managed following EORTC Quality of Life Group guidelines.¹⁴ Comparisons were performed using the Student *t* test (paired values) for continuous variables and Fisher’s exact test for categorical variables.

Results from the PATSAT32 questionnaire also were standardized by linear transformation (range 0-100), with 100 representing the best results in terms of satisfaction. All statistical analysis was performed using SAS software (SAS Institute Inc, Cary, NC).

RESULTS

During the study, 975 patients were admitted (Figure). Seventy-seven patients were discharged within 24 hours without undergoing a surgical procedure and were excluded from the study. Therefore, the study population was composed of 898 patients, 828 of whom underwent surgery with a diagnostic or therapeutic purpose. The number of operations decreased from period A (*n* = 494) to period B (*n* = 334) due to the expected reduction of surgical activity during the summer and to an unexpected reduction of ICU bed availability during September and October of 2007. The clinical characteristics of the population did not change over time (Table 1). The QLQ-C30 questionnaire was completed by 805 patients (period A 481/534, 90%; period B 324/364, 89%). No significant differences in QOL were detected between periods A and B.

During period A, 26 patients (4.9%) reported problems requiring the following specific interventions: nurse home support for 3 patients (0.5%); medical treatment for sleep for 16 patients (3%); psychological counseling for 6 patients (1.1%); and administrative counseling for 1 patient (0.1%). During period B, QLQ-C30 results identified critical areas for 75 patients (20.6%), and the following interventions were proposed: nurse home support for 9 patients (2.4%); medical treatment for sleep for 26 patients (7%); psychological counseling for 31 patients (8.4%); administrative counseling for 13 patients (3.5%); and an additional interview for reported low QOL without any apparent cause for 13 patients. All the interventions proposed were accepted by patients with the exception of psychological counseling, which was refused by 4 patients.

■ **Table 1.** Clinical Characteristics of the Population^a

Variable	Period A (n = 534)	Period B (n = 364)	P
Demographics			
Age, mean ± SD, y	62.3 ± 10.1	63.1 ± 12	.51
Male	375 (70.2)	260 (71.4)	.65
Previous chemotherapy and/or radiotherapy	90 (16.8)	50 (13.7)	.22
FEV ₁ , %	71 ± 28.8	68 ± 21.9	.40
Diagnosis			
Lung cancer	361 (67.6)	234 (64.2)	.31
Pulmonary metastases	51 (11.4)	38 (10.4)	.65
Esophageal cancer	19 (3.5)	12 (3.2)	.85
Other pathologies	93 (17.4)	58 (15.9)	.58
Urgent cases	16 (2.9)	11 (3)	1
Surgery			
No surgical procedure	40 (7.5)	31 (8.5)	.61
Diagnostic/palliative procedures	158 (29.6)	119 (32.7)	.33
Curative resections	336 (62.9)	214 (58.7)	.23
Outcome			
Complicated	70 (13.1)	54 (14.8)	.49
ICU readmission	10 (1.87)	10 (2.7)	.49
Uncomplicated	464 (86.9)	323 (88.7)	.46
Readmission within 30 days	12 (2.2)	10 (2.7)	.66
In-hospital mortality	7 (1.3)	6 (1.6)	.77

FEV₁ indicates forced expiratory volume in the first second of expiration; ICU, intensive care unit.
^aValues are number (percentage) unless otherwise indicated.

The overall response rate for the satisfaction questionnaires was above 80% (730/898, 81.3%) and did not change between the 2 periods (period A 429/534, 80.3%; period B 301/364, 82.7%). Overall patient satisfaction with care (item 32) significantly improved in the second part of the study (period A 85.4 ± 16.7 vs 91.9 ± 13.1; *P* = .009) (Table 2). All item scores in period B were higher than they were in period A. The most improvement was recorded in the nurses' information provision (SATNIP, 67.7 ± 24.1 in period A vs 80.2 ± 20.2 in period B; *P* = .0014) and availability (SATNAV, 70.4 ± 22.8 vs 84.3 ± 19.2; *P* < .001). Surprisingly, the third-ranking improvement was recorded for the hospital access scale (SATACC, 66.5 ± 23.9 in period A and 77.1 ± 21.6 in period B; *P* = .0045), which was the item with the lowest score in both periods and for which no specific modification occurred during the study period.

DISCUSSION

Quality means continuous improvement, which is the key to excellence in healthcare. From a technical point of view,

quality means compliance with preestablished standards. Rigorous efforts are continuously made by caregivers to define, defuse, respect, and control standards in all the phases of care. Nonetheless, quality in administered care often does not correspond to the quality experienced by the patients, which is the perceived quality, according to the Kano model.¹⁵

Perceived quality is measurable by the assessment of satisfaction with care, which is becoming a key issue in hospital quality programs. Satisfaction with care may vary depending on demographic and individual characteristics such as age (with younger subjects registering less satisfaction than older patients), education (highly educated patients were less satisfied than less educated patients), personality, and familiarity with health plan coverage.¹⁶ However, the impact of these variables is too limited to define them as major determinants of satisfaction. Other aspects (eg, clinical outcome, type of treatment, subsequent quality of life) also have been shown to be unrelated to patient satisfaction with hospital care.¹⁷

It is logical to assume that the major determinant of patient satisfaction is the capacity of formal caregivers to recognize and understand their patients' state of mind as well as

Table 2. Patient Satisfaction Assessed Anonymously at Discharge

EORTC Questionnaire IN-PATSAT32	Period A		Period B		P ^a
	Mean ± SD	Median	Mean ± SD	Median	
General satisfaction (SATGEN)	85.4 ± 16.7	100	91.9 ± 13.1	100	.0090
Doctors					
Technical skills (SATDTS)	86.4 ± 13.9	91.7	90.7 ± 12.2	100	.0193
Interpersonal skills (SATDIS)	80.6 ± 18.3	83.3	89.0 ± 14.7	100	.0018
Information provision (SATDIP)	79.5 ± 21.0	79.2	86.5 ± 17.1	91.7	.0266
Availability (SATDAV)	81.1 ± 18.3	87.5	85.9 ± 16.2	87.5	.0945
Nurses					
Technical skills (SATNTS)	75.4 ± 21.2	75.0	86.3 ± 15.6	91.7	.0011
Interpersonal skills (SATNIS)	71.1 ± 22.1	75.0	85.9 ± 16.2	91.7	<.001
Information provision (SATNIP)	67.7 ± 24.1	75.0	80.2 ± 20.2	75.0	.0014
Availability (SATNAV)	70.4 ± 22.8	75.0	84.3 ± 19.2	87.5	<.001
Hospital					
Exchange of information (SATEXC)	76.9 ± 19.3	75.0	83.6 ± 18.0	75.0	.0298
Other hospital staff interpersonal skills and information provision (SATOTH)	77.7 ± 16.1	75.0	85.7 ± 16.4	91.7	.0017
Waiting time (SATWAI)	79.1 ± 16.6	75.0	86.2 ± 16.4	87.5	.0055
Hospital access scale (SATAACC)	66.5 ± 23.9	62.5	77.1 ± 21.6	75.0	.0045
Comfort (SATCOM)	84.1 ± 17.5	75.0	89.6 ± 15.9	100	.0305

EORTC indicates European Organisation for Research and Treatment of Cancer.
^aP values were determined by using the Wilcoxon 2-sample, 2-sided test (t approximation).

Table 3. Specific Interventions Proposed in Identified Critical Areas

Intervention	Overall	Period A	Period B	P
Nurse home support	12	3 (0.5%)	9 (2.4%)	.01
Therapy and/or consultation for sleep disorder	42	16 (3%)	26 (7%)	.001
Psychological advice	37	6 (1.1%)	31 (8.4%)	<.001
Administrative counseling	14	1 (0.1%)	13 (3.5%)	<.001
Additional interview	13	0	13 (3.5%)	<.001

their emotional state; in a word, to establish empathy. This becomes particularly crucial in the treatment of diseases with tremendous psychological impact such as cancer, in which the difficulties to be faced involve not only clinical symptoms but also socioeconomic factors and psychological stress—all the dimensions of QOL.

The hypothesis of the study was that patients treated with a personalized QOL-based approach would be more satisfied with administered care. This hypothesis was confirmed by results of this study.

Patients hospitalized during the second period expressed a higher level of satisfaction with the care they received dur-

ing their hospital stay. This was due to the significant overall improvement in all determinants of satisfaction with physicians, nurses, and hospital, even though the baseline scores for those parameters in the first period of the study had already proved satisfactory. In fact, comparing baseline values with those from the study by Bredart et al published in 2005,¹⁸ our scores were higher regarding physicians and hospital and equivalent regarding nurses, probably due to some different characteristics between the 2 populations. During the second part of the study, our scores were modified according to the rule that lower parameters have the most significant improvements. The lowest score at baseline was

for the hospital access scale, which improved by more than 10% although no specific structural measurement was taken during the considered period. Additionally, all scores regarding nurses had a gain of higher than 10%, suggesting that a significant improvement in nurse–patient communication was achieved.

The QOL questionnaire has been demonstrated to be an efficient tool in improving communication between patients and caregivers. In fact, there was a 4-fold increase in the detection of critical areas after its adoption (Table 3), which required only a minimal additional workload for medical staff (about 15 minutes per patient). Furthermore, the questionnaire improved communication between physicians and nurses, providing an added opportunity for more in-depth discussion of patients, which the staff perceived as a major advantage. However, 2 difficulties were encountered during the second part of the study: the need for weekly updating of the satisfaction questionnaire response rate (with the goal of maintaining it above 80%), as well as the need to organize meetings on a monthly basis for the discussion of logistic problems and to maintain staff motivation.

The large size of the population, the high rate of response to the questionnaires, and the prospective nature of the observations are the strength of the study. There were, however, 3 major limitations. The first was that the satisfaction questionnaire was anonymous; therefore, it was impossible to match demographics and QOL data with results from the satisfaction questionnaire for each patient. As a direct consequence, analysis of predictors of low satisfaction at discharge was not feasible. The second was that satisfaction improved when the number of operations was reduced (July–August 2007), suggesting that patients were more satisfied when the hospital staff had more time for them. However, this explanation is unlikely, as the ratio of hospital staff/nurses to patients in the ward remained unchanged; therefore, the personnel workload was not modified over time. Additionally, the same reduction in the number of surgical cases recorded the previous year did not modify patient satisfaction during the pilot phase of the study performed in 2006.

The third limitation was that other factors influencing the improvement of satisfaction in the second period of the study may have been overlooked, given the fact that the comparison was made between populations enrolled during different periods. This potential drawback was discussed at the time of the study's design and accepted because (1) the accrual modalities and the large size of the population should have a stabilizing effect on the comparison, (2) the 2 populations were compared for all variables considered clinically relevant and no difference was detected, and (3) there was no difference between periods in terms of staff or procedures.

Results from this pilot study need confirmation with larger populations and in different settings before proposing such an approach as a routine procedure for hospitalized patients. Nevertheless, use of a simple and reliable evaluation of QOL at admission contributes to improvement of the quality of administered care because it enables a multidimensional plan of care. This approach permits focused management of ongoing problems, close cooperation between caregivers, and a more flexible response to patient needs, resulting in increased patient satisfaction with care as measured at discharge.

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