Support Care Cancer (2009) 17:1507–1516
DOI 10.1007/s00520-009-0617-3

ORIGINAL ARTICLE

Pilot evaluation of a French interdisciplinary supportive care department

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Received: 19 August 2008 / Accepted: 15 March 2009 / Published online: 3 April 2009

Abstract

Purpose of the study This pilot study was designed to evaluate the impact of management by the Interdisciplinary Supportive Care Department for Cancer Patients (*Département Interdisciplinaire de Soins de Support pour le Patient en Oncologie—DISSPO*) at the Institut Curie in Paris, France on patient quality of life and satisfaction with care.

Materials and methods Patients hospitalised for cancer treatment and referred to DISSPO during their hospitalisation were invited to complete the European Organization for Research and Treatment of Cancer core quality of life (EORTC QLQ-C30) and patient satisfaction (EORTC IN-PATSAT32) questionnaires during the week following their initial management by DISSPO (T0) and 2 months later (T1). These patients were compared with control patients matched for age, gender, ward and period of hospitalisation in terms of quality of life and satisfaction with care.

Main results One hundred fourteen (77%) DISSPO patients at T0 and 72 (48%) patients at T1 and 102 (89%) control patients at T0 and 66 (57%) at T1 returned their completed questionnaires. Baseline characteristics of DISSPO patients and control patients were significantly different in terms of duration of the current hospitalisation, interval between the date of diagnosis of the cancer and inclusion in the study (both longer for DISSPO patients) and Karnofsky performance status (lower for DISSPO patients). For the 43 pairs of patients who completed the questionnaires at the two time points, significant independent positive effects of management by DISSPO and age (less than or equal to 60 years) were demonstrated for patient satisfaction in relation to the availability of the nursing and paramedical team. In particular, patients over the age of 60 not managed by DISSPO presented a significant reduction of patient satisfaction scores over the 2 months compared to age-matched patients managed by DISSPO.

Conclusions Management of cancer patients by an interdisciplinary supportive care department appears to have a positive impact on patient satisfaction in relation to availability of the nursing and paramedical team. These results need to be confirmed in a larger study.

Keywords Supportive care · Cancer · Quality of life · Satisfaction with care · Availability

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Introduction

Cancer has a considerable impact on the patient's well-being. The treatments proposed for this disease often generate adverse effects and/or disabling sequelae. Various studies have revealed a significant number of physical, functional, psychological, social, financial or existential difficulties in these patients and their families, as well as a need for information or specific support, regardless of the type of cancer or the phase of the disease [2, 5, 15, 20, 21, 27–29, 33, 34].

Cancer supportive care was set up in order to more effectively meet the needs of cancer patients [22, 26]. Models of coordination of supportive care have been proposed in healthcare establishments to organise the multidisciplinary aspects of the highly specialised and highly technical healthcare professionals in oncology and the insufficient communication between teams [18]. These characteristics can have a negative impact on quality of care, damaging the relationship with the patient, the cohesion and continuity of care and inducing added confusion and psychological distress for the patient and family.

Patients often report dissatisfaction with their interactions with clinicians (e.g. information, attention to psychosocial needs) or organisation of healthcare, in terms of continuity and coordination of care (e.g. exchange of information between hospital specialists and the general practitioner or the home care team), or waiting times (e.g. to receive the results of medical examinations or to obtain an appointment with a doctor) [6, 11–13, 19, 31]. Specific needs for improvement of healthcare may emerge as a function of socio-demographic characteristics, particularly concerning coordination, access to care and the need for medical information [4].

The Multinational Association of Supportive Care in Cancer defines supportive care as “the prevention and management of the adverse effects of cancer and its treatment, including physical and psychosocial symptoms and side effects across the entire continuum of the cancer experience, and involving the enhancement of rehabilitation and survivorship”. Supportive care therefore comprises management of possible anti-tumour treatment sequelae as well as palliative care, corresponding to initial and terminal palliative phases [18]. In France, the integration of multidisciplinary supportive care structures into cancer care has become mandatory, with particular emphasis on the importance of multidisciplinary treatment decision-making discussions [3].

A critical and comprehensive appraisal of studies addressing the effectiveness of psychosocial, supportive and palliative care services for the cancer patients recently carried out by the National Institute for Health and Clinical Excellence concluded that “strong evidence for the effectiveness of intervention was available for certain areas, such as specialist palliative care, information giving, psychological support or pain management” [14]. However, the effectiveness of models of care coordination was less scientifically established, suggesting the need to further evaluate these initiatives.

The present study evaluates the effects of interventions proposed in the context of an “Interdisciplinary Supportive Care Department for Cancer Patients” (French acronym: DISSPO) on quality of life and satisfaction with care of patients treated for cancer.

The DISSPO relies on a biopsychosocial patient-centred care approach [10, 23]. This model recognises the dynamic interaction of multiple factors in relation to an individual’s health and the need for interdependent and integrated interdisciplinary health care integrating global patient assessment, patient-centred communication, interprofessional education, communication and coordination.

The DISSPO was set up in July 2003 at the Institut Curie in order to promote this care approach through a better recognition, referral and management of complex physical symptoms and psychosocial needs in patients receiving treatment for cancer. Coordination in this model of supportive care involves the use of a complex health care needs screening tool, the implementation of weekly multidisciplinary liaison staff meeting and the adoption of clinical guidelines for managing complex symptoms and needs in cancer patients.

The needs of patients are considered to be “complex” inasmuch as they cannot be managed by first-line clinicians (oncologists, nurses) and require the specific skills of supportive care professionals: supportive care physicians, psycho-oncologists, social workers, dieticians or physiotherapists.

This pilot study was designed to evaluate the impact of an initial 2-month management by the DISSPO on the main aspects of quality of life and patient satisfaction with care, independently of specific socio-demographic or clinical factors. Quality of life and patient satisfaction were selected as outcome variables, as they constitute relevant indicators of the quality of healthcare services provided in response to the patient's healthcare needs.

Psychometrically valid instruments, which have demonstrated their ability to respond to change in health status [1] or to discriminate between groups of patients varying in satisfaction with care levels [8], have been selected to assess these outcomes.

Materials and methods

Design

A prospective, nonrandomised, observational study was conducted to compare inpatients newly referred to the

DISSPO during a hospital stay with a control inpatient group matched for age (within a 10-year range), gender, hospital ward and period (within a 21-day range) of hospital stay.

Patient selection

Study participants were recruited from the medical oncology and surgery wards of Institut Curie (Paris, France). Eligibility criteria included a histologically confirmed cancer diagnosis, an expected survival time of at least 3 months, age above 18 years, ability to provide informed consent and current hospital stay of at least one day at Institut Curie. This last criterion was defined to allow for sufficient experience of a hospital stay to assess satisfaction with care in that context. The control patient was recruited within 21 days of the DISSPO patient's referral to the DISSPO. Patients physically or cognitively unable to complete a questionnaire or unable to understand the language of the questionnaire were not included.

DISSPO structure and activities

The DISSPO is a supportive care department integrating and coordinating the activities of five mobile units operating in the various wards of the Institut Curie cancer hospital: the Supportive and Continuous Care Mobile Team, including a wound and scarring specialised nurse; the Psycho-Oncology Unit; the Physical Rehabilitation Unit; the Nutritional Unit; and the Social Work Unit. The DISSPO professionals operate as consultants in the various hospital wards. The DISSPO team is supervised by a physician (head of one unit) assisted by a paramedical professional.

The DISSPO comprises a systematic evaluation by a ward nurse of newly hospitalised cancer patients through a specifically designed list of criteria for identifying the patient to be referred to one or more of the DISSPO unit (s) (see Appendix: DISSPO referral criteria list). New DISSPO patients are referred to the DISSPO units they need and are presented at a weekly staff meeting involving the different health care professionals in charge of the patient. During that meeting, information on the physical and psychosocial patient health care needs is shared and used to organise a coherent and articulated management option of the health care problem(s) identified. These patients are followed and repeatedly assessed and discussed during these staff meetings when further specific problems occur or at key points in the course of their treatment. Specific guidelines are followed by DISSPO members as clinical pathways for the specific health care problem they each address (e.g. discharge planning at the end of life, important weight loss, psychiatric disorders, compliance problems).

Procedure

Between July 2004 and April 2006, 2 days per week, a study assistant contacted patients meeting the eligibility criteria. Patients who agreed to participate were introduced to the study objectives and procedures and invited to complete the EORTC quality of life (EORTC QLQ-C30) and patient satisfaction (EORTC IN-PATSAT32) questionnaires. Written informed consent was obtained from each participant. Baseline assessment (T0) was performed within 1 week of referral to the DISSPO or control patient accrual, and the subsequent assessment (T1) was performed 2 months later.

At T0, the patient was given the questionnaire in hospital and was asked to complete the questionnaire in hospital or at home (when the patient was discharged), and the questionnaire was then returned in a reply-paid envelope. At T1, questionnaires were sent to the patient's home and were completed at home and returned by mail. When the patient was hospitalised at T1, the questionnaires were completed in hospital. A single telephone call reminder was performed if the questionnaire had not been returned within 14 days. Direct enquiry about refusal to participate or failure to return the questionnaire was not permitted by the Ethics Committee (French CNIL—National Data Processing and Liberties Commission).

Data collected and outcome measures

Patients provided socio-demographic data at baseline such as age, gender, level of education, marital status and clinical data such as the site and stage of cancer, date of cancer diagnosis, type of current cancer treatment and length of hospital stay were obtained from medical records. The Karnofsky performance status was assessed by the hospital ward oncologist in charge of the patient. Quality of life was measured using the European Organisation for Research and Treatment of Cancer core quality of life questionnaire—EORTC QLQ-C30 [1]. The EORTC QLQ-C30 covers a range of quality of life issues relevant to a broad spectrum of cancer patients. Patient satisfaction was assessed by the European Organisation for Research and Treatment of Cancer patient satisfaction questionnaire—EORTC IN-PATSAT32 [8]. This questionnaire addresses the patient's perception of the quality of hospital doctors and nurses, as well as specific aspects of the care organisation and hospital environment. For the specific objective of this study, the instructions concerning the nurses' assessment were expanded to paramedical personnel, including psycho-oncologists, social workers, physical therapists and dieticians.

Statistical methods

Sample size requirement was based on the criterion of patient satisfaction with the doctor's technical skills as reported on the EORTC IN-PATSAT32. Patient satisfaction was considered our primary endpoint as improved quality of life would then, theoretically, lead to better patient satisfaction. The doctors' technical skills scale was selected as the main patient satisfaction outcome as this aspect of care was evidenced to be most important for cancer patients [32].

A previous survey found a doctors' technical scale mean (SD) score of 3.49 (0.85; on a scale ranging from 1 to 5) [7]. A sample of 100 patients per group (DISSPO and control groups) was estimated as providing a 80% power to detect a difference in satisfaction with mean scores for doctors' technical skills of 0.3 The type I error rate is 5%. With this sample size, we would have a power superior to 80% to detect a 10% change on a scale ranging from 0 to 100 as standardised scores of EORTC measures are computed. A change of 5% to 10% of scale breath appears perceptible to patients as a meaningful change [25].

DISSPO and control patients were compared at T0 and T1 using paired-sample McNemar tests for qualitative variables and a paired-sample Student *t* test for quantitative variables. Respondents and non-respondents were compared using Pearson’s Chi-squared test or Fisher’s exact test for categorical data and using Student *t* test for continuous data.

Analysis of variance, taking into account the paired individuals, was used to test differences between patients from the DISSPO and control groups on EORTC QLQ-C30 and IN-PATSAT32 subscale relative score variation ((T1-T0)/T0). With respect to this study design, differences between paired individuals and then the mean of these differences were computed.

This method was also used to assess the impact of potential confounding socio-demographic or clinical covariates, including age, gender, disease stage, Karnofsky performance status, time since diagnosis and length of hospital stay. To limit the number of statistical tests performed, only the EORTC QLQ-C30 functional and global health status and IN-PATSAT32 doctors and nursing/paramedical personnel subscales were selected as outcome variables. Variables significant at p value <0.10 in ANOVA univariate analysis were included in a multivariate ANOVA analysis. A pairwise method was used to deal with missing data. All statistical analyses were performed on R statistical software.

Results

Over the study period, 527 patients were referred to the DISSPO. Among them, the part-time research assistant could invite 151 eligible inpatients to participate in this study (Fig. 1); patients who were not included were followed on an outpatient basis, already assessed as control patients or not identified within 1 week of referral to the DISSPO. One hundred and forty-nine invited patients accepted to participate in this study, and 114 (77%) returned their completed questionnaires. Eight patients spontaneously reported tiredness as the reason for not returning the questionnaires, five patients died unexpectedly during the 14 days following distribution of the questionnaires and no reason for non-reply was provided for 22 patients. One hundred and sixteen control patients were identified, and 102 (89%) returned the completed questionnaires. At 2 months (T1), 72 (48%) DISSPO patients and 66 (57%) controls again completed these questionnaires.

Descriptive socio-demographic and clinical characteristics

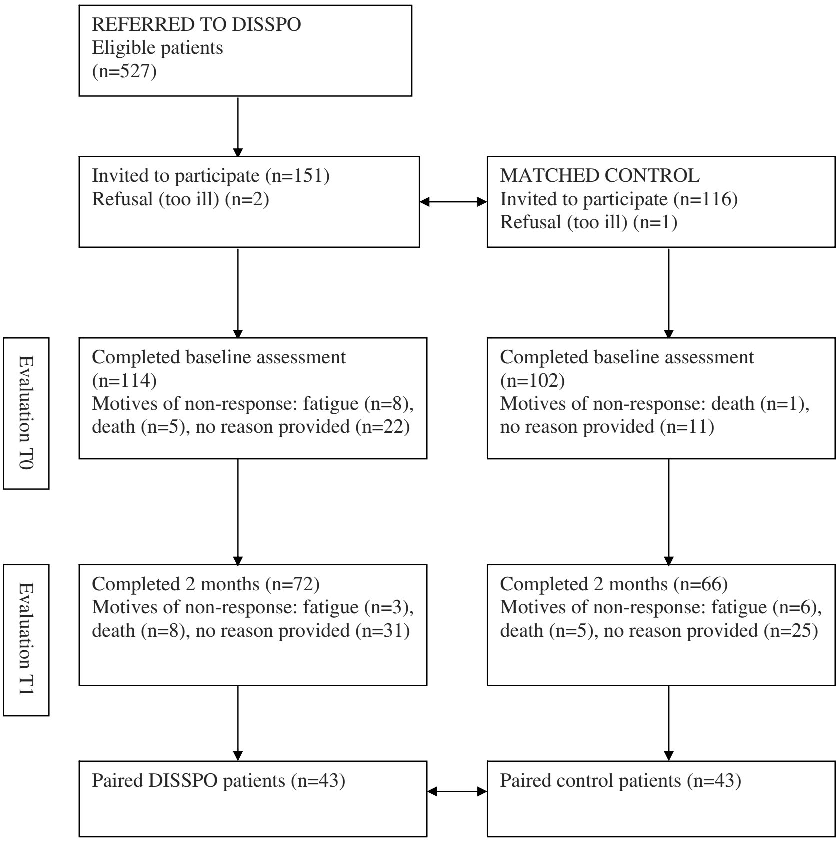
Characteristics of age, gender, educational level, tumour type, disease stage and hospital ward in which the patient was admitted were balanced across patient groups (Table 1). However, the time interval between cancer diagnosis and study inclusion and the duration of the current hospital stay were longer for DISSPO patients than for control patients (p value=0.01 and <0.0001), and the Karnofsky performance status was lower for DISSPO patients than for control patients (p value=0.0001).

These characteristics did not differ between respondents and non-respondents to the first questionnaires; however, at the second assessment, a greater number of non-respondents than respondents presented metastatic disease among both DISSPO and control patients (p value <0.0001).

Univariate analyses

Univariate analysis showed that patient satisfaction with nursing/paramedical personnel availability was significantly related to DISSPO attendance (F test: p value=0.04) and age (F test: p value=0.04; Tables 2 and 3): An increase of the mean score for the satisfaction with nursing/paramedical personnel availability subscale was observed in DISSPO patients, whereas this score decreased in control patients. An increase of the mean score of the satisfaction with nursing/paramedical personnel availability subscale was also observed in patients aged 60 years or less, whereas a decrease of this score was demonstrated in patients over the age of 60 years. No other outcome variable of the EORTC QLQ-C30 and IN-PATSAT32 selected subscales appeared to be associated with DISSPO attendance, and no other potential socio-demographic or clinical covariate was correlated with patient satisfaction with nursing/paramedical personnel availability.

Fig. 1 Participation rate



Looking at score changes for DISSPO or control patients considered as groups (on the same patients as for the paired patients analysis), we observed a 5% to 10% score change for most of the EORTC QLQ-C30 selected scale. Particularly, a positive score change (9%) was observed for the DISSPO and NOT for the control patients.

Multivariate analysis

In multivariate analysis, adjusted independent effects of DISSPO attendance (*F* test: *p* value=0.04) and age (*F* test: *p* value=0.03) were evidenced on patient satisfaction with nursing/paramedical personnel availability: For instance, patients over the age of 60 who did not attend the DISSPO demonstrated a significant decrease in satisfaction over the 2-month period compared to patients aged 60 years or less who attended the DISSPO (Table 3).

Discussion

Coordinated multidisciplinary supportive care teams have been recently set up in cancer hospitals. However, few data are available on the effects of these new models of care from the patient's point of view. As the main objective of these units is improvement of quality of life and improved patient satisfaction, evaluation of the patient's perception of the quality of these new modalities of care is particularly relevant.

This prospective, nonrandomised, observational study, with a matched control group, was designed to estimate the effect of 2 months of initial management by a French Interdisciplinary Supportive Care Department for Cancer Patients (DISSPO) on quality of life and patient satisfaction.

A positive effect of management by the DISSPO was observed on the level of satisfaction in relation to availability of the nursing and paramedical team. Moreover, looking at score changes for DISSPO or control patients considered as groups, a positive change in perceived overall health status was observed for DISSPO but not for control patients, suggesting that a DISSPO effect could be evidenced using a statistical analysis approach considering groups rather than pairs of patients.

Patients managed by the DISSPO therefore presented a positive course of their level of satisfaction in relation to the availability of the nursing and paramedical team while control patients presented a deterioration of their satisfaction concerning these aspects.

Table 1 Baseline characteristics

	DISSPO group (n=114)	Control group (n=102)	p value
Age, years			
Mean	60	60	NS
Range	18–90	19–82	
Time since diagnosis, months			
Mean	36	20	<0.01
Range	0–386	0–444	
Length of hospital stay, days			
Mean	20	8	<0.01
Range	1–86	1–57	
	Number of patients (%)	Number of patients (%)	
Gender			
Male	49 (43)	44 (43)	NS
Female	65 (57)	58 (57)	
Education level			
Elementary	17 (15)	8 (8)	NS
High school	41 (36)	38 (37)	
College/University	53 (47)	55 (54)	
Marital status			
Married	72 (63)	61 (60)	NS
Other	42 (37)	41 (40)	
Tumour type			
Breast	36 (32)	38 37)	NS
Gynaecologic	13 (11)	12 (12)	
GU	5 (4)	7 (7)	
GI	16 (14)	5 (5)	
Head/neck	33 (29)	25 (25)	
Other	11 (10)	13 (14)	
Stage of disease			
Local/loco-regional	58 (51)	62 (61)	
Metastatic	55 (48)	40 (39)	
Hospital ward			
Medical oncology	27 (24)	25 (25)	NS
Radiotherapy	14 (12)	11 (11)	
Surgery A	37 (32)	36 (35)	
Surgery B	36 (32)	30 (29)	
Karnofsky performance status			
≤50	39 (34)	15 (15)	<0.01
>50	75 (66)	87 (85)	

NS not significant

Independent of the effect of management by the DISSPO, an effect of age was also observed. Regardless of the age group, patients managed by the DISSPO presented a positive course of their level of satisfaction in relation to the availability of the nursing and paramedical team, while control patients presented a decline in their level of satisfaction, and at the same time, regardless of the mode of management (standard management or by the DISSPO), patients aged 60 years or less presented a positive course of their level of satisfaction in relation to the availability of the nursing and paramedical team, while patients aged 60 years presented a decline of this level of satisfaction.

This effect of the DISSPO on satisfaction in relation to the availability of the nursing or paramedical team was expected, as the DISSPO ensures a longer and more continuous presence of nursing or paramedical staff, especially by means of regular telephone contact when the patient is no longer hospitalised.

Table 2 Baseline (T0) and 2 months later (T1) mean (SD) scores and effect of DISSPO intervention on relative score change for each patient pair and selected EORTC QLQ-C30 and IN-PATSAT32 subscales

	DISSPO group			Control group			Effect of DISSPO intervention p value for F test
	Mean (SD) at T0	Mean (SD) at T1	Mean (SD) of relative score change[a]	Mean (SD) at T0	Mean (SD) at T1	Mean (SD) of relative score change	
EORTC QLQ-C30							
Physical functioning (N=38)	68.5 (26.2)	75.1 (21.2)	0.46 (1.3)	76.1 (24.6)	80.1 (20.4)	0.27 (1.0)	NS
Role functioning (N=17)	74.5 (27.1)	62.7 (32.6)	−0.05 (0.5)	76.5 (24.3)	72.5 (30.6)	0.02 (0.6)	NS
Emotional functioning (N=37)	55.2 (28.1)	63.7 (28.4)	0.63 (1.5)	66.2 (27.4)	74.2 (22.0)	0.46 (1.2)	NS
Social functioning (N=26)	64.1 (36.1)	58.3 (34.1)	0.05 (1.0)	71.8 (25.3)	77.0 (25.0)	0.15 (0.4)	NS
Overall health status (N=39)	47.2 (16.6)	56.0 (17.1)	0.38 (0.8)	56.4 (17.9)	58.3 (22.4)	0.30 (1.8)	NS
EORTC IN-PATSAT32							
Doctors							
Technical competence (N=36)	79.7 (18.2)	73.8 (18.7)	−0.05 (0.24)	82.4 (17.9)	76.4 (18.6)	−0.06 (0.2)	NS
Interpersonal quality (N=37)	70.0 (23.9)	65.5 (24.9)	0.01 (0.4)	75.8 (21.1)	69.8 (24.2)	−0.05 (0.3)	NS
Information (N=37)	61.7 (25.6)	59.3 (22.7)	0.24 (1.4)	69.7 (22.3)	70.6 (23.1)	0.10 (0.5)	NS
Availability (N=36)	61.8 (25.2)	60.1 (22.7)	0.13 (0.7)	71.9 (22.4)	66.3 (22.9)	−0.04 (0.3)	NS
Nurses/paramedical personnel							
Technical competence (N=40)	77.3 (18.8)	75.8 (16.3)	0.02 (0.3)	81.3 (17.8)	79.2 (17.3)	−0.004 (0.2)	NS
Interpersonal quality (N=40)	78.1 (19.1)	76.3 (18.3)	−0.003 (0.2)	80.0 (18.4)	80.6 (18.0)	0.03 (0.2)	NS
Information (N=35)	66.2 (22.1)	64.8 (22.1)	0.02 (0.3)	73.3 (19.1)	72.1 (22.0)	0.02 (0.3)	NS
Availability (N=39)	73.1 (21.4)	72.8 (17.4)	0.05 (0.3)	78.5 (19.2)	73.4 (23.2)	−0.07 (0.3)	0.04
General satisfaction (N=35)	81.4 (16.4)	75.0 (19.2)	−0.05 (0.3)	79.3 (16.6)	79.3 (20.5)	0.01 (0.2)	NS

N number of patients for data available at both T0 and T1 assessment and for paired patients for each selected scales of the EORTC QLQ-C30 and IN-PATSAT32

[a] The mean is computed on the sum of the difference for each patient pair. A positive or negative sign means increase or decrease, respectively

Deterioration of satisfaction with the availability of the nursing or paramedical team in patients over the age of 60 not managed by the DISSPO highlights the need for increased availability of the nursing or paramedical team in this age group, not provided by standard care, but which appears to be achieved by the DISSPO. Recent studies have emphasised the importance of coordinated global management in elderly patients. Older cancer patients over the age of 65 often present complex problems that require comprehensive physical and psychosocial support, often provided by multiple professionals working in different health care providing organisations [9]. Using a self-administered questionnaire in an outpatient oncology practice, Hurria [16] emphasises the deficiency of standard care in terms of the particular needs of elderly patients for attention and availability of the nursing and paramedical team, probably to help them deal with their various medical and psychosocial problems.

This study presents several methodological limitations such as the use of a non-experimental comparative design conducted in a single site and on a small sample size. As the DISSPO was set up throughout the hospital, a randomised study could not be performed. These patients were therefore compared to a matched group of patients not managed by DISSPO, but the impact of management by DISSPO is only partially controlled by this type of study design.

The target sample size was not achieved, as patient recruitment was limited by the study design (matched control), and loss of a patient (due to tiredness, for example) inevitably led to loss of the matched patient. Telephone follow-up would probably have avoided drop-outs, but this approach was not used for ethical and methodological reasons: the fear of disturbing an unknown, possibly seriously ill patient by an initial telephone contact;

Table 3 Effect of DISSPO intervention and age on relative score differences of EORTC IN-PATSAT32 nurses and paramedical personnel availability subscale

	Mean score at T0	Mean score at T1	Mean (SD) of relative score change[a]
≤60 (*N*=19)			
Control group	80.9 (16.3)	81.6 (14.1)	0.03 (0.2)
DISSPO group	71.1 (21.3)	73.0 (16.8)	0.08 (0.3)
>60 (*N*=20)			
Control group	76.3 (21.8)	65.6 (27.5)	−0.18 (0.3)
DISSPO group	75.0 (21.8)	72.5 (18.4)	0.03 (0.3)

Effect of DISSPO: *p* value for *F* test=0.04; effect of age: *p* value for *F* test=0.03

[a] The mean is computed on the sum of the difference for each pair. A positive or negative sign means increase or decrease, respectively

the lack of comparability of responses given by various modalities of evaluation (self-evaluation by the patient alone or hetero-evaluation by a telephone conversation). A larger sample size would confirm these results, which must be considered cautiously at this stage.

Finally, respondents and non-respondents did not differ in terms of baseline socio-demographic and clinical characteristics, but the response rate at 2 months was lower for the more severely ill patients, and the results obtained therefore essentially reflect the point of view of less severely ill patients.

Using a matched comparison, no significant difference was observed on overall quality of life or important functional and satisfaction with care domains between the DISSPO and control matched patients. Several explanations may be suggested, which should be tackled in further research. The absence of difference between both groups may mean that DISSPO patients who were judged to need support did gain benefit because they would have been worse at T1 than control patients who did not need support. In fact, we observed that patients aged over 60 years old who were not managed by the DISSPO deteriorated in terms of satisfaction with the availability of nursing and paramedical team, which supports this hypothesis. To overcome the selection bias in this quasi-experimental study, we could have considered a cohort comparison with a similar hospital service in which DISSPO is not available or with existing data obtained from a previous survey in the Institut Curie when the DISSPO was not yet implemented.

Further explanation may be that the intended interventions in the DISSPO were not adequately performed or that control patients obtained supportive care interventions by other means within or outside the hospital. Quality of care improvement research has elaborated specific designs such as time series designs to assess the functional relationship between process changes in systems of health care (i.e. new interventions, re-organisation of care) and changes in outcomes. These designs control for extraneous factors that weaken the validity of observational studies, essentially by means of continuous assessment that determine whether changes in outcome coincides with the intervention and by using statistical process control [30].

Based on this methodology and following Jacobsen's [17] suggestions for assessing the practice implementation of psychosocial care evidence-based recommendations for cancer patients, further research on the effectiveness of the DISSPO could focus on assessing (1) whether the complex needs screening tool is effectively used for every patients admitted in the different hospital wards, (2) whether patients identified as presenting complex needs are effectively discussed during the weekly DISSPO staff meeting and whether an action has been taken for the patient evidencing problem(s) and (3) whether improvement in clinical status may be recorded.

Analysis of factors that impeded the process or may explain the lack of improvement in outcomes (e.g. lack of time, room, skills, motivation, confidence, professional role definition, central coordination, network resources) should be addressed for further development of improvement initiatives. A number of psychological theories have been highlighted as helpful to study the implementation of evidence-based practices [24].

Evaluation of clinical practice is essential to improve quality of care. This pilot study suggests a perceived benefit by DISSPO patients of complementary care ensuring more prolonged and continuous presence of nursing or paramedical staff. Moreover, elderly patients in this hospital not managed by a department specifically designed to identify complex medical and psychosocial problems and ensure coordinated global management present unmet needs, especially in terms of sufficient access to nursing or paramedical teams.

Acknowledgements This study was conducted with the support of a grant from the Haute Autorité de Santé, France. We thank Virginie Baille-Barrelle, Yaël Storch, Florence Box and Delphine Marmion for their help in collecting data and are most grateful to all patients who kindly agreed to participate in this study.

Appendix

DISSPO referral criteria list

This checklist is designed to identify cancer patients with complex care needs. Its purpose is to help oncology providers to screen patients that need to be referred to one or more of the DISSPO unit(s). This checklist must be completed for each new patient in the ward. The "complex" patient meets at least one criterion for at least two DISSPO units. Once identified, the complex patient is referred the DISSPO secretariat.

Floor criteria	1 = YES 0 = NO	COMMENTS
Social service		
. Less than 20 year		
. Have a relative in charge (child, older parent,…)		
. Isolated (no social, familial relationship)		
. Material problems (housing, job, financial resources…)		
. Discharged in another health care structure		
Palliative care mobile team		
. Patients in palliative stage whose symptoms cannot be managed by the front-line medical team		
. Wish for end of life at home expressed by patient and/or relatives		
. Ethical decisions related to palliative stage (end of anti-tumour treatment, sedation…)		
Would and scarring		
. Chronic wound with uncontrolled symptoms (odours, discharge, haemorrhage,…)		
Psycho-oncology unit		
. Thoughts of suicide, suicidal expression or behaviour		
. Known psychiatric history		
. Treatment refusal or compliance problem		
Functional rehabilitation unit		
. Immobilization of a member or the whole person > 5 days		
. Bedsore		
. Breathing difficult due to clinically heard or seen secretions		
Nutrition unit		
. Weight loss > à 10% in 6 months *		
. Bedsore		
. Diet for hospitalised patients or ill adapted diet		

References

1. Aaronson NK, Ahmedzai S, Bergman B, Bullinger M, Cull A, Duez NJ, Filiberti A, Flechtner H, Fleishman SB, de Haes JC et al (1993) The European Organisation for Research and Treatment of Cancer QLQ-C30: a quality of life instrument for use in international clinical trials in oncology. J Natl Cancer Inst 85:365–376. doi:10.1093/jnci/85.5.365
2. Aranda S, Schofield P, Weih L, Yates P, Milne D, Faulkner R, Voudouris N (2005) Mapping the quality of life and unmet needs of urban women with metastatic breast cancer. Eur J Cancer Care (Engl) 14(3):211–222. doi:10.1111/j.1365-2354.2005.00541.x
3. ARHIF (Regional Agency for Hospital Stay in Ile-De-France) (2008) Regional Schema for Health Organisation —Cancer Care. French Republic
4. Ayanian JZ, Zaslavsky AM, Guadagnoli E, Fuchs CS, Yost KJ, Creech CM, Cress RD, O'Connor LC, West DW, Wright WE (2005) Patients' perceptions of quality of care for colorectal cancer by race, ethnicity, and language. J Clin Oncol 23(27):6576–6586. doi:10.1200/JCO.2005.06.102
5. Barg FK, Cronholm PF, Straton JB, Keddem S, Knott K, Grater J, Houts P, Palmer SC (2007) Unmet psychosocial needs of Pennsylvanians with cancer: 1986–2005. Cancer 110:631–639. doi:10.1002/cncr.22820
6. Brédart A, Razavi D, Robertson C, Didier F, Scaffidi E, Fonzo D, Autier P, de Haes JC (2001) Assessment of quality of care in an oncology institute using information on patients' satisfaction. Oncology 61:120–128. doi:10.1159/000055362
7. Brédart A, Mignot V, Rousseau A, Beauloye N, Adam V, Elie C, Léonard I, Conroy T (2004) Validation of the EORTC QLQ-SAT32

cancer inpatient satisfaction questionnaire by self-versus interview-assessment comparison. Patient Educ Couns 54(2):207–212. doi:10.1016/S0738-3991(03)00210-6

8. Brédart A, Bottomley A, Blazeby JM, Conroy T, Coens C, D'Haese S, Chie WC, Hammerlid E, Arraras JI, Efficace F, Rodary C, Schraub S, Costantini M, Costantini A, Joly F, Sezer O, Razavi D, Mehlitz M, Bielska-Lasota M, Aaronson NK, European Organisation for Research and Treatment of Cancer Quality of Life Group and Quality of Life Unit (2005) An International Prospective Study of the Psychometric Properties of the EORTC QLQ-SAT32 in assessing cancer patient perception of the quality of care received in the hospital. Eur J Cancer 41:2120–2131. doi:10.1016/j.ejca.2005.04.041
9. Colussi AM, Mazzer L, Candotto D, De Biasi M, De Lorenzi L, Pin I, Pusiol N, Romanin C, Zamattio V (2001) The elderly cancer patient: a nursing perspective. Crit Rev Oncol Hematol 39:235–245. doi:10.1016/S1040-8428(00)00116-5
10. Engel GL (1980) The clinical application of the biopsychosocial model. Am J Psychiatry 137:535–544
11. Fitch MI, Gray RE, Mcgowan T, Brunskill I, Steggles S, Sellick S, Bezjak A, McLeese D (2005) Travelling for radiation cancer treatment: patient satisfaction. Can Oncol Nurs J 15(2):107–119
12. Gesell SB, Gregory N (2004) Identifying priority actions for improving patient satisfaction with outpatient cancer care. J Nurs Care Qual 19(3):226–233
13. Gourdji I, McVey L, Loiselle C (2003) Patients' satisfaction and importance ratings of quality in an outpatient oncology center. J Nurs Care Qual 18(1):43–55
14. Gysels M, Higginson IJ, Rajasekaran M, Davies E, Harding R (2004) Guidance on cancer services improving supportive and palliative care for adults with cancer. Research evidence. National Institute for Clinical Excellence, London
15. Hodgkinson K, Butow P, Hunt GE, Wyse R, Hobbs KM, Wain G (2007) Life after cancer: couples' and partners' psychological adjustment and supportive care needs. Support Care Cancer 15(4):405–415. doi:10.1007/s00520-006-0148-0
16. Hurria A, Lichtman SM, Gardes J, Li D, Limaye S, Patil S, Zuckerman E, Tew W, Hamlin P, Abou-Alfa GK, Lachs M, Kelly E (2007) Identifying vulnerable older adults with cancer: integrating geriatric assessment into oncology practice. J Am Geriatr Soc 55(10):1604–1608. doi:10.1111/j.1532-5415.2007.01367.x
17. Jacobsen PB (2009) Promoting evidence-based psychosocial care for cancer patients. Psychooncology 18(1):6–13
18. Krakowski I, Boureau F, Bugat R, Chassignol L, Colombat P, Copel L, d'Hérouville D, Filbet M, Laurent B, Memran N, Meynadier J, Parmentier G, Poulain P, Saltel P, Serin D, Wagner JP (2004) For a coordination of the supportive care for people affected by severe illnesses: proposition of organization in the public and private health care centres. Bull Cancer 91:449–456
19. Landen CN Jr, Younger NO, Collins Sharp BA, Underwood PB (2003) Cancer patients' satisfaction with physicians: Princess Margaret Hospital satisfaction with Doctor Questionnaire results. Am J Obstet Gynecol 188(5):1177–1179. doi:10.1067/mob.2003.281
20. Li J, Girgis A (2006) Supportive care needs: are patients with lung cancer a neglected population? Psychooncology 15(6):509–516. doi:10.1002/pon.983
21. Lintz K, Moynihan C, Steginga S, Norman A, Eeles R, Huddart R, Dearnaley D, Watson M (2003) Prostate cancer patients' support and psychological care needs: survey from a non-surgical oncology clinic. Psychooncology 12(8):769–783. doi:10.1002/pon.702
22. McLachlan SA, Allenby A, Matthews J, Wirth A, Kissane D, Bishop M, Beresford J, Zalcberg J (2001) Randomized trial of coordinated psychosocial interventions based on patient self-assessments versus standard care to improve the psychosocial functioning of patients with cancer. J Clin Oncol 19:4117–4125
23. Mead N, Bower P (2000) Patient-centredness: a conceptual framework and review of the empirical literature. Soc Sci Med 51(7):1087–1110. doi:10.1016/S0277-9536(00)00098-8
24. Michie S, Johnston M, Abraham C, Lawton R, Parker D, Walker A, "Psychological Theory" Group (2005) Making psychological theory useful for implementing evidence based practice: a consensus approach. Qual Saf Health Care 14(1):26–33
25. Osoba D, Bezjak A, Brundage M, Zee B, Tu D, Pater J, Quality of Life Committee of the NCIC CTG (2005) Analysis and interpretation of health-related quality-of-life data from clinical trials: basic approach of The National Cancer Institute of Canada Clinical Trials Group. Eur J Cancer 41(2):280–287. doi:10.1016/j.ejca.2004.10.017
26. Rummans TA, Clark MM, Sloan JA, Frost MH, Bostwick JM, Atherton PJ, Johnson ME, Gamble G, Richardson J, Brown P, Martensen J, Miller J, Piderman K, Huschka M, Girardi J, Hanson J (2006) Impacting quality of life for patients with advanced cancer with a structured multidisciplinary intervention: a randomized controlled trial. J Clin Oncol 24:635–642. doi:10.1200/JCO.2006.06.209
27. Sanson-Fisher R, Girgis A, Boyes A, Bonevski B, Burton L, Cook P (2000) The unmet supportive care needs of patients with cancer. Supportive Care Review Group. Cancer 88:226–237. doi:10.1002/(SICI)1097-0142(20000101)88:1<226::AID-CNCR 30>3.0.CO;2-P
28. Smith DP, Supramaniam R, King MT, Ward J, Berry M, Armstrong BK (2007) Age, health, and education determine supportive care needs of men younger than 70 years with prostate cancer. J Clin Oncol 25(18):2560–2566. doi:10.1200/JCO.2006.09.8046
29. Soothill K, Morris SM, Harman J, Francis B, Thomas C, McIllmurray MB (2001) The significant unmet needs of cancer patients: probing psychosocial concerns. Support Care Cancer 9(8):597–605. doi:10.1007/s005200100278
30. Speroff T, O'Connor GT (2004) Study designs for PDSA quality improvement research. Qual Manag Health Care 13(1):17–32
31. von Plessen C, Aslaksen A (2005) Improving the quality of palliative care for ambulatory patients with lung cancer. BMJ 330(7503):1309–1313. doi:10.1136/bmj.330.7503.1309
32. Wiggers JH, Donovan KO, Redman S, Sanson-Fisher RW (1990) Cancer patient satisfaction with care. Cancer 66(3):610–616. doi:10.1002/1097-0142(19900801)66:3<610::AID-CNCR2820660335>3.0.CO;2-T
33. Wen KY, Gustafson DH (2004) Needs assessment for cancer patients and their families. Health Qual Life Outcomes 26(2):11
34. Whelan TJ, Mohide EA, Willan AR, Arnold A, Tew M, Sellick S, Gafni A, Levine MN (1997) The supportive care needs of newly diagnosed cancer patients attending a regional cancer center. Cancer 80(8):1518–1524. doi:10.1002/(SICI)1097-0142(19971015)80:8<1518::AID-CNCR21>3.0.CO;2-7