การประเมินคุณภาพชีวิตของผู้ป่วยมะเร็งระยะสุดท้ายที่ได้รับยาเคมีบำบัดแบบประคับประคอง

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บทคัดย่อ

คุณภาพชีวิตเป็นการวัดผลลัพธ์ทางการแพทย์ และสำคัญสำหรับการวางแผนเป้าหมายการรักษาในผู้ป่วยมะเร็ง ประเมินการเปลี่ยนแปลงของคุณภาพชีวิตในผู้ป่วยมะเร็งระยะสุดท้ายที่ได้รับการรักษาด้วยยาเคมีบำบัดแบบประคับประคอง เป็นการศึกษาที่สถาบันเดียวโดยศึกษาไปข้างหน้า โดยศึกษาในผู้ป่วยรายใหม่ที่ได้รับการวินิจฉัยเป็นมะเร็งระยะสุดท้ายชนิดก้อน มะเร็งทางโลหิตวิทยาที่กลับเป็นซ้ำหรือไม่ตอบสนองต่อการรักษาที่เข้ารับการรักษาด้วยยาเคมีบำบัดแบบประคับประคอง โดยเก็บข้อมูลใช้เป็นแบบสอบถามประกอบไปด้วยข้อมูลพื้นฐาน การประเมินสภาวะร่างกายของผู้ป่วย มีการประเมินคุณภาพชีวิตของผู้ป่วยโดยใช้ European Organization for Research and Treatment of Cancer (EORTC QLQ C30) โดยประเมินก่อนได้รับยาเคมีบำบัด ที่ 3 เดือน และ 6 เดือนหลังจากได้รับยาเคมีบำบัด คะแนนของคุณภาพชีวิตจะมีการเปรียบเทียบกันทั้งก่อนได้รับยาเคมีบำบัด ที่ 3 เดือน 6 เดือน โดยใช้การวิเคราะห์ความแปรปรวนที่มีการวัดซ้ำมากกว่า 1 ครั้ง โดยรายงานเป็นค่าเฉลี่ยและส่วนเบี่ยงเบนมาตรฐาน มีค่านัยสำคัญทางสถิติที่น้อยกว่า 0.05 จากการศึกษามีผู้ป่วยที่เข้าร่วมการศึกษาทั้งหมด 70 ราย มีอายุเฉลี่ย 55.07 (SD 14.88) ปี เป็นเพศชาย 44 ราย และเป็นเพศหญิง 26 ราย เป็นมะเร็งชนิดก้อนจำนวน 49 ราย และเป็นมะเร็งทางโลหิตวิทยาจำนวน 21 ราย หลังจากติดตามที่ 6 เดือน พบว่ามี 27 รายที่ได้รับการประเมินครบทั้ง 3 ครั้ง คะแนนด้านการทำหน้าที่ (ด้านอารมณ์ ด้านการรับรู้ และด้านสังคม) สูงขึ้นที่ 3 และ 6 เดือนหลังจากได้รับการรักษาด้วยยาเคมีบำบัด รวมไปถึงอาการทางด้านความอ่อนเพลีย และสภาวะทางการเงินของผู้ป่วยนั้นพบว่าดีขึ้นหลังจากได้รับยาเคมีบำบัด 3-6 เดือนก็ตาม คุณภาพชีวิตโดยรวมของผู้ป่วยแย่ลงหลังจากได้รับยาเคมีบำบัด 3 เดือน และเพิ่มขึ้นเล็กน้อยหลังจากได้รับยาเคมีบำบัดที่ 6 เดือน แม้ว่าคะแนนทางด้านการทำหน้าที่ อาการอ่อนเพลีย และสภาพทางการเงินของผู้ป่วยจะดีขึ้นหลังจากได้รับยาเคมีบำบัด แต่คุณภาพชีวิตโดยรวมของผู้ป่วยแย่ลงหลังจากได้รับยาเคมีบำบัดที่ 3 เดือน

คำสำคัญ: มะเร็งระยะสุดท้าย คุณภาพชีวิต ยาเคมีบำบัด

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Evaluation of quality of life in patients with advanced-stage cancer undergoing palliative chemotherapy

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Abstract

Quality of life (QoL) was a significant medical outcome measure and was an important goal for the planning of treatment among cancer patients. In order to evaluate changes in QoL during palliative chemotherapy among Thai patients with an advanced-stage cancer. A single-center prospective study was conducted with advanced-stage cancer patients enrolled in the study who were undergoing palliative chemotherapy in a single university hospital. The data were collected using self-administered questionnaires. The baseline characteristics, performance status, and quality of life using the European Organization for Research and Treatment of Cancer (EORTC QLQ C30) were measured at 3 and 6 months after chemotherapy treatment. The QoL scores were compared across the three-time points using repeated-measures analysis of variance. The QoL scores were reported in terms of mean and standard deviation and a p-value less than 5% was statistically significant. A total of 70 patients were enrolled in this study, with a mean age of 55.07 (SD 14.88) years, with 44 males and 26 females. Solid cancers and hematologic malignancies were found in 49 and 21 patients, respectively. After 6 months of follow-up, 27 participants were evaluated completely. The functioning scales such as emotional, cognitive, and social functions had higher scores after three months of therapy and marked minor further improvements over 6 months. The symptoms of fatigue and financial difficulties also significantly improved after 3 to 6 months of chemotherapy treatment. The overall QoL showed worsening after 3 months of treatment and a slight improvement after 6 months. While the functioning scales of fatigue and financial conditions of the patients improved after chemotherapy, but the overall quality of life worsened after 3 months of treatment.

Keywords: advanced-stage cancer, quality of life, chemotherapy

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Introduction

Quality of life (QoL) evaluation has become even important in the care of all cancer patients[1-4] and patients with advanced cancer[5-8]. Improving overall survival and QoL is the main goal of palliative care[9]. A previous study showed that age, survival time, performance status, diagnosis, and cancer treatment are important determinants of QoL scores in patients with advanced cancer[8]. The basic cancer treatments can be local treatments of surgery[10,11], radiotherapy[12,13], and chemotherapy[14-16]. Chemotherapy side effects can degenerate the QoL in breast cancer patients[17,18], advanced Non-Small Cell Lung Cancer 6, and metastatic colorectal patients[19]. A study on the QoL conducted among Thai cancer patients showed that the overall QoL scores before and after treatment with chemotherapy were slightly worsened in advanced non-small cell lung cancer[20,21]. Nevertheless, it is also the treatment that can improve QoL in cancer patients[22-24]. Contrast with some previous studies[14,16] showed that no significant difference in the QoL scores between the start of chemotherapy and after the completion. Although there is some knowledge about cancer patients' QoL undergoing chemotherapy, there have been few studies discussing the QoL among patients with advanced-stage cancer in Thailand. Furthermore, work published in developed countries does not reflect the true context of Thai patients. The objective of the present study was to assess the changes in the QoL of patients with advanced-stage cancer before and after chemotherapy treatment within the daily clinical routine of the university hospital. Consequently, this study will be a baseline study for future research to enhance our understanding of QoL among cancer patients with chemotherapy treatment and how it is affecting the patient's quality of life.

Materials and Methods

Study design and sample

The study was a single-center prospective, questionable-based, cohort study. All patients were recruited from the palliative care unit, university hospital, a central region of Thailand between March 1, 2017, and September 30, 2018. Eligible participants were those with a new diagnosis of advanced-stage cancer such as gastrointestinal, lung, prostate, and soft tissue, relapsed, or refractory hematologic malignancy at least 6 months before the data collection were included in the study. All Patients received chemotherapy either outpatient or hospitalization. All participants were able to communicate effectively with the research staff. Patients with cognitive impairment, primary and secondary tumors of the central nervous system, and serious psychiatric disorders were excluded from the study. Moreover, Patients with infected or sepsis or febrile neutropenia during chemotherapy were excluded. The present study was approved by the ethics committee of the institutional review boards (SWUEC 372/59E). Informed consent was obtained from all patients.

Assessment instrument

Sociodemographic and clinical data such as age, gender, and comorbidities were collected from the medical records gathered when patients were admitted. Serious adverse events were collected during the administration of chemotherapy. Quality of life was assessed using the European Organization for Research and Treatment of Cancer (EORTC QLQ-C30) version 3.0[25], a 30-item questionnaire, which was translated and validated in Thai[26]. Scores for the symptom components were linearly transformed to a scale of 0 to 100. A high score for a functional scale represented a relatively high level of functioning, whereas a high score for a symptom scale represented greater severity of symptoms impact[25]. Performance status was assessed by oncology healthcare professionals using the Eastern Cooperative Oncology Group scale (ECOG) for cancer patients[27]. Palliative performance scale (PPS) were also assessed by the palliative performance scale[28]. Initial assessment included ECOG, PPS, and QoL scale after patients were enrolled in the study, following their review of a consent form describing the contents of the study, and agreed to participate in the study. All patients were then reassessed every 3 months with the ECOG, PPS, and QoL scale until completed with chemotherapy through face-to-face interviews; patients could refuse an interview if they felt too ill to answer questions.

Statistical Analysis

Statistical analyses were performed using the STATA version 14. Frequencies were calculated for patient demographics. Mean and standard deviation (SD) respectively were used to describe the continuous data. QoL scores were also described using the mean and SD. Questionnaire scores were compared across the four-time points using repeated-measures analysis of variance. Effects of multiple variables (age group, gender, presence of comorbidity, and treatment modality) on changes in global health status and palliative performance scale over time were described. In all statistical analyses, a P-value of less than 5% was considered significant.

Results

Out of the 70 eligible participants from the palliative care unit, 44 men diagnosed with advanced-stage cancer were included in the analysis. The largest proportion of patients was aged between 17 and 79 years. Forty-three patients have dropped out from the study due to death (n=41) and lost to follow-up (n=2) (Figure 1).

At the time of study inclusion, figure 2 showed that most of the patients were diagnosed with hematologic malignancy. Figure 3 contains the descriptive statistics for all Functioning scales of the EORTC QLQ-C30 (Physical, Role, Social, Emotional, and Cognitive Functioning), Global QoL, and its subscales before the start of chemotherapy.

Twenty-seven out of 70 patients completed 6 months of various chemotherapy modality treatment. All sociodemographic and clinical characteristics of patients are summarized in Table 1. Table 2 summarizes the EORTC QLQ-C30 and PPS2 results at the three time points. Before the start of chemotherapy, all functional scales of the EORTC QLQ-C30 were higher than 80. Our results showed that Functional scales (emotional, cognitive, and social function) were significant differences statistically between the three-time points. Fatigue and financial difficulties also significantly improved after 3-6 months of chemotherapy treatment. All these changes were clinically important. Overall QOL significantly worsened 3 months after therapy and then improved significantly through 6 months. The mean of PPS2 scores increased from pre-treatment then minor decreased after treatment ended. However, compared to finding at pre-treatment, at 3 months, and 6 months after treatment, the mean PPS2 scores were not significantly changed (Table 2).

Figure 4 showed descriptions of global QoL and PPS2 scores at the three-time points with patients categorized by age group, sex, presence of comorbidity, and treatment modality. The analysis revealed that patients over 60 years old experienced poor global QoL and PPS more than younger patients.

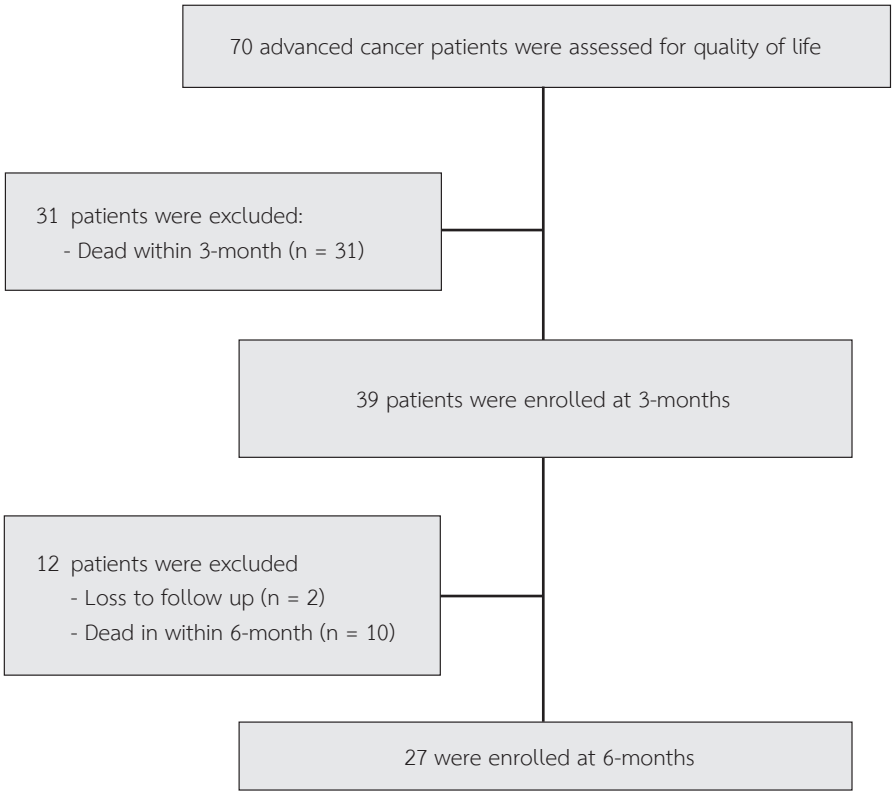


Figure 1 The enrollment of patients

Table 1 The characteristics of advanced cancer patients

Characteristics	All patients (N = 70)	After 6 months follow-up (N = 27)
Age, mean ± SD, (range)	55.07 ± 14.88 (17-79)	56.18 ± 15.80 (17-78)
Male/Female	44/26	15/12
Comorbidities		
Diabetic mellitus (DM)	4	2
HT + DLP	4	1
Dyslipidemia (DLP)	2	2
Cirrhosis	3	1
Hypertension (HT)	3	0
Gout	1	1
Hyperthyroid	1	0
Thalassemia	1	0
HT+DLP+CKD	1	1
HT+DM	1	1
HT+DLP+DM	1	0
HT+DM+DLP+CKD	1	0
ECOG Performance status		
0	11	5
1	31	15
2	11	2
3	15	4
4	2	1
Treatment		
Chemotherapy (CTX)	70	21
Chemo-radiation (CTX - RT)	6	1
CTX + Surgery	7	5
CTX-RT + Surgery	1	0

SD: Standard deviation, COPD: Chronic obstructive pulmonary disease, CKD: Chronic kidney disease, ECOG: Eastern Cooperative Oncology Group

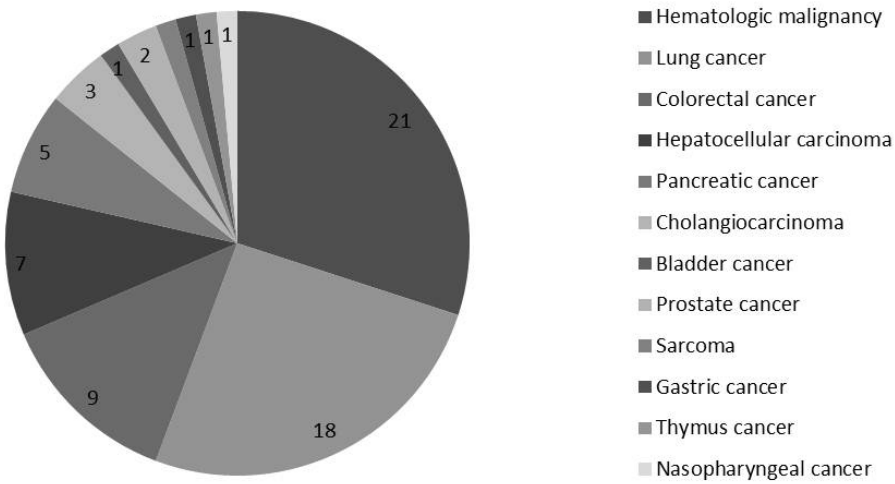
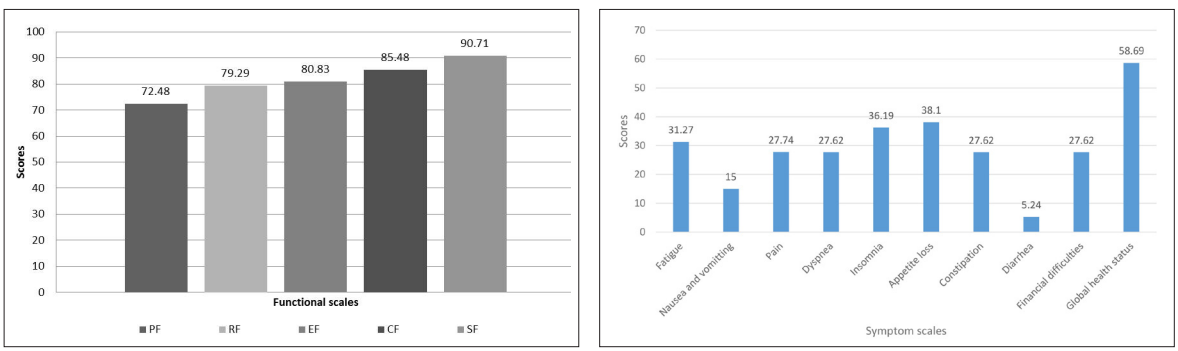


Figure 2 Number of advanced cancer patients (N = 70)



A) Functioning scales/items (higher score shows better quality of life)

B) Symptoms scales/items (lower score show better quality of life)

Figure 3 EORTCQLQ-C30 questionnaires scores of the 70 Thai patients with advanced cancer according to functional scales (A) and symptom scales (B)**.** Abbreviation: PF; Physical function, RF; Role function, EF; Emotional function, CF; Cognitive function, SF; Social function

Table 2 Descriptive statistics (means, standard deviations, and range) and comparison of the results of the EORTC QLQ-C30 and palliative performance scales for 27 cancer patients after 6-months follow-up

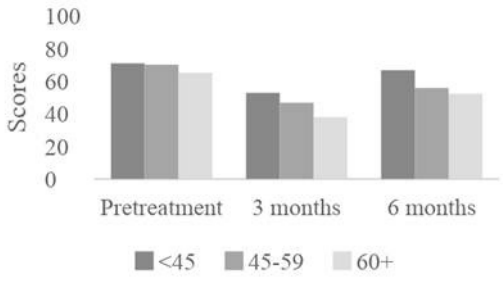
Outcomes	Item No./s	Pretreatment	3 months	6 months	*p*-value*
		Mean ± SD, (range)	Mean ± SD, (range)	Mean ± SD, (range)	
Functional scales					
PF	1-5	82.47±26.93, (0-100)	90.37±22.74, (6.67-100)	82.22±25.69, (6.67-100)	0.193
RF	6-7	90.12±24.13, (0-100)	90.74±23.72, (0-100)	81.48±26.69, (0-100)	0.057
EF	21-24	87.04±17.19, (25-100)	99.07±3.53, (83.3-100)	96.60±8.42, (66.67-100)	0.025
CF	20, 25	92.59±14.12, (50-100)	99.38±3.21, (83.33-100)	95.06±10.14, (66.67-100)	<0.001
SF	26, 27	94.44±10.34, (66.67-100)	99.38±3.21, (83.33-100)	99.38±3.21, (83.33-100)	0.008
Symptom scales					
FA	10,12,18	22.22±20.67, (0-66.67)	6.53±11.64, (0-33.33)	10.70±14.93, (0-66.67)	0.004
NV	14-15	9.26±19.79, (0-66.67)	8.02±16.26, (0-66.67)	6.17±12.36, (0-33.33)	0.772
PA	9,19	16.67±24.45, (0-83.33)	7.41±17.50, (0-83.33)	16.05±20.40, (0-83.33)	0.046
DY	8	22.22±24.46, (0-66.67)	8.64±19.81, (0-66.67)	18.52±25.04, (0-100)	0.065
SL	11	23.46±27.45, (0-100)	9.88±18.06, (0-66.67)	16.05±23.33, (0-66.67)	0.055
AP	13	22.22±30.66, (0-100)	9.88±18.06, (0-66.67)	14.81±16.88, (0-33.33)	0.128
CO	16	16.05±26.75, (0-100)	22.22±18.49, (0-66.67)	20.98±16.40, (0-33.33)	0.481
DI	17	4.94±15.20, (0-66.67)	1.23±6.41, (0-33.33)	2.47±8.89, (0-33.33)	0.468
FI	28	18.52±28.24, (0-66.67)	1.23±6.41, (0-33.33)	0	<0.001
QOL	29-30	68.21±24.68, (0-100)	44.44±21.68, (16.67-100)	56.79±24.24, (16.67-100)	0.004
PPS2 scores	-	78.15±19.42, (20-100)	80.00±12.40, (30-90)	75.92±24.96, (5-100)	0.586

PPS2: Palliative performance scales version 2

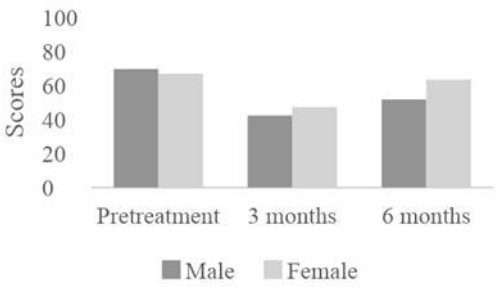
* Questionnaire scores and palliative performance scales were compared across the three-time points using repeated-measures analysis of variance (ANCOVA)

(A) Global health status

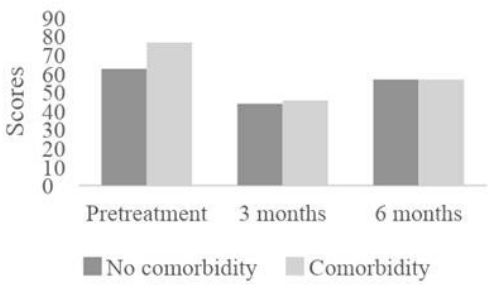
1. Age group



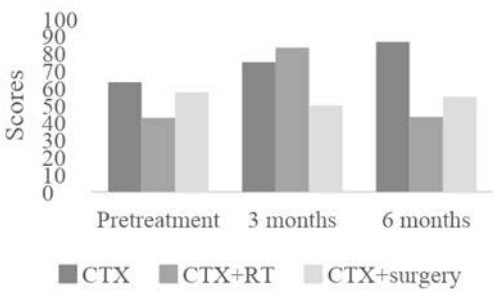
2. Gender



3. Comorbidities

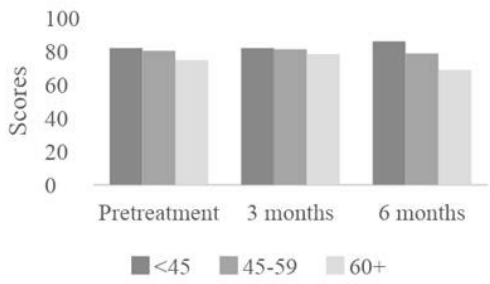


4. Type of treatments

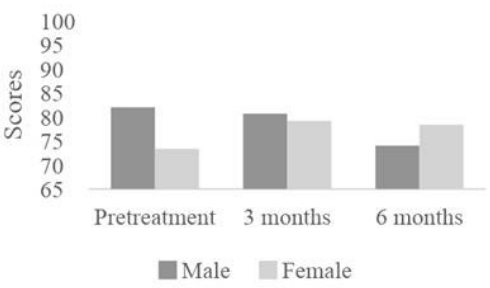


(B) Palliative performance scales

1. Age group



2. Gender



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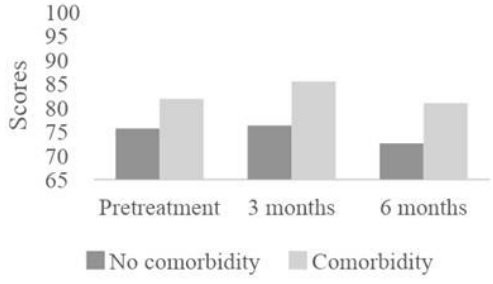

4. Type of treatments

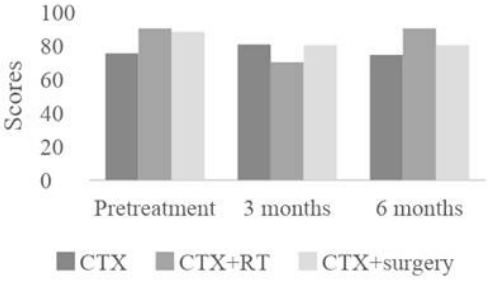

Figure 4 Description of scores for global health status (A) and palliative performance scales (B) with patients categorized by age group, sex, presence of comorbidity, and type of treatment (N=27)

Discussion

To date, researchers have tended to focus on measuring global and/or cancer-specific QOL in patients with cancer, whereas our participants included various chemotherapy treatment modalities and advanced-stage cancer. We also had known that QoL evaluation has become even important in the care of all cancer patients[1-4]. A previous study revealed that cancer treatment is an important determinant of global QoL in patients with advanced cancer[8]. To our knowledge, the findings of this study focus on measuring QOL scores in patients with advanced-stage cancer.

In our study, we found various chemotherapy treatment regimens for advanced-stage cancer affected multiple QoL domains. In patients treated with chemotherapy treatment, there was an increase in the cognitive and emotional functioning scores, followed by a slight decrease after 6 months. Meanwhile, social functioning improved from pre-treatment to treatment ended. These results are like those described by Domati at 6-months follow-up[29]. The values of the functional scales decreased after 6 months, indicating a worsening of the QoL. A worsening of the QoL may not mainly be related to treatment with chemotherapy, but gender was the first factor affecting the QoL. Some previous studies showed that women had lower physical, social, and psychological QoL domains[30-32]. In contrast, colon cancer patients in men perceived more limitations such as in carrying out their work, other daily activities, and social relationships[29]. Meantime, in some studies, gender did not affect the quality of life of the cancer patients[33].

Moreover, some previous studies indicated that increased body mass index (BMI)[34,35] and perceived stress[36] were predictive of deceased QoL and cancer-related fatigue over time. Increased BMI was also predictive of worse physical component scores, while increased perceived stress was predictive of worse mental component scores of the QoL. However, we did not study this factor.

Our findings also found that patients reported large improvements in fatigue and financial difficulties scores at the end of treatment. Some cancer treatments may improve fatigue symptoms. We cannot explain how the improved financial problem. We need more investigation.

Although our results showed that patients with chemo-radiotherapy and operation combined with chemotherapy had worse QoL than those with chemotherapy alone. However, due to the small sample size, there were many differences in cancer types and treatments. Therefore, further study is needed. Various natural clinical progression of malignancies can affect to burden of disease and survival.

Furthermore, our results also described that the mean of PPS2 scores increased from pre-treatment then minor decreased after treatment ended. The mean PPS2 scores were not significantly changed over time in a pattern like physical function scores and role function scores. Further, we observed that QoL and PPS2 in our sample were affected not only by

chemotherapy treatment modality but also by patient-specific factors (age, sex, comorbidity). Therefore, according to these findings, the recovery time varies depending on the type of treatment and the characteristics population studied.

Our study has some limitations. Firstly, there is limited by small sample size. Second, there were many different types of cancers. Therefore, the differentiation of QoL scores for different types of cancer could not be analyzed. Thirdly, the authors were presented only an observation period of 6 months, not being able to examine the length of the treatment effect.

Conclusions

Although the functioning scales, fatigue, and financial condition of patients were improved after chemotherapy**.** But the overall quality of life worsened after 3 months of treatment**.**

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Conflict of Interest

The authors declare that they have no conflict of interest.

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