Pre-and Post-Surgical Health-Related Quality of Life Evaluation of Spheno-orbital Meningioma Patients Based on EORTC QLQ-C30 Questionnaire at Dr. Cipto Mangunkusumo General Hospital

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Abstract

Objective: Health-related quality of life (HRQoL) has become an important outcome for neurosurgical patients underwent surgery. The authors utilized the European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ C-30) to assess the quality of life of spheno-orbital meningiomas patients after surgery in one national central referral hospital in Indonesia.

Methods: In this cross-sectional study, medical record-based data of 40 spheno-orbital meningioma patients who underwent surgery at Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia from October-December 2016 were analyzed. Differences between pre-and postsurgical EORTC scores was examined using the Student's t test.

Results: There was a statistically significant increase of EORTC QLQ-C30 scores in global health status, role functioning, emotional functioning, cognitive functioning, and social functioning variables, and statistically significant decrease for clinical symptoms variables.

Conclusion: Evidently, there was improvement in HRQoL in spheno-orbital meningiomas patients after surgery, in whom EORTC QLQ-C30 can be used to assess the HRQoL prior to and after surgical procedures.

Keywords: brain tumor; EORTC QLQ C-30; sphenoorbital meningioma; quality of life.

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INTRODUCTION

Intracranial tumor patients often suffer from tumor-specific side effects, as well as other adverse general symptoms, resulting in impairment of their quality of life, physical-psychosocial conditions, and overall well-being activities [1,2]. Patient-reported treatment outcome, particularly health-related quality of life (HRQoL), is increasingly becoming an objective as important as survival and extent of neurosurgical tumor resection

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[3]. One of the HRQoL evaluation instrument is the European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (EORTC QLQ-C30)[4], which has been utilized internationally in over 3,000 studies and has been validated and translated into more than 50 languages, including Bahasa Indonesia [5]. Despite numerous studies performed on the HRQoL of meningioma patients globally, few has performed investigations in Indonesia. Our aim is to determine the EORTC QLQ-C30 score in spheno-orbital meningioma patients managed in our hospital, the central referral health care facility in Indonesia.

MATERIALS AND METHODS

Subjects

This cross-sectional study was conducted at the Department of Neurosurgery, Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia, from October-December 2016. Information on the components of EORTC QLQ-C30 were obtained through medical records and direct interviews on study subjects in outpatient setting. All adult patients with spheno-orbital meningioma and hyperostosis who had undergone surgical procedures and provided consent were included in the study; otherwise, patients were excluded. Study subjects were then provided with a form of EORTC QLQ-C30 questionnaire in Indonesian language and were given thorough explanation for completion. Data were taken prior to surgery and three months post-surgery.

Determination of Spheno-orbital Meningiomas

The diagnosis of spheno-orbital meningiomas were confirmed through interview and physical examination (ocular proptosis, visual disturbance, and ocular paresis), and neuroimaging (extra-axial hyperdense lesion, often accompanied by calcification and bone hyperostosis on CT; isointense lesion which enhances homogenously post-contrast on MRI).

EORTC QLQ-C30

The EORTC QLQ-C30 consists of single- and multi-item scales[4]. Of the 30 items, 24 items aggregate into nine multi-item scales representing various HRQoL dimensions: five functioning scales (physical, role, emotional, cognitive and social), three symptom scales (fatigue, pain and nausea), and one global measure of health status. The remaining six single-item scales assess patients' symptoms: dyspnea, appetite loss, sleep disturbance, constipation and diarrhea, and the perceived financial impact of the disease treatment. High scores indicate better HRQoL for the global health status and functioning scales, and worse HRQoL for the symptom scales.

Statistical Analysis

Differences between pre-and postsurgical EORTC scores were analyzed using the Student's t test. All analyses were conducted utilizing the IBM SPSS version 25. Differences with two-tailed *p-value* of <0.05 are considered statistically significant.

The research proposal has been approved by the ethics committee of the Faculty of Medicine, Universitas Indonesia, with letter number 427/2.F1/ETIK/VI/2016

RESULTS

Forty patients were included in the study. The mean age ± SD of the study population was 45.1 ± 7.9 years old. Table 1 presents the EORTC QLQ-C30 score for global health status, functional scales, and symptom scales/items. There was significant difference between post- and presurgical EORTC QLQ C-30 scores. Significant improvement were observed in all aspects of the score: compared to presurgical condition, mean ± SD improvement is 17.2 ± 12.6 (global health status/ QoL); 18.4 ± 17.5 (physical functioning); 25.5 ± 18 (role functioning); 36 ± 18.9 (emotional functioning); 26.5 ± 25 (cognitive functioning); 26.5 ± 23.6 (social functioning); -26.5 ± 18.4 (fatigue); -11.3 ± 14.6 (nausea and vomiting); -18.3 ± 14.4 (pain); -26.5 ± 24.3 (dyspnea); -36.3 ± 22.3 (insomnia); -23.5 ± 26.6 (appetite loss); -20.6 ± 24.6 (constipation); -10.8 ± 24.2 (diarrhoea); and -18.6 ± 27.5 (financial difficulties) (Table 2).

DISCUSSION

In this paper, the authors have measured the HRQoL of spheno-orbital meningioma patients operated in our hospital, which is the top national central referral hospital,

Table 1. Basic characteristics of study population.

EORTC QLQ-C30	Score, presurgical Mean±SD	Score, 3-months postsurgical Mean±SD	*p*-value
Global health status/QoL			
Global health status/QoL	58.1 ± 12.4	75.2 ± 13.4	< .0001
Functional scales			
Physical functioning	72.7 ± 17.1	91.2 ± 9.8	< .0001
Role functioning	55.4 ± 21.6	80.9 ± 16.5	< .0001
Emotional functioning	47.5 ± 13.8	83.6 ± 13.5	< .0001
Cognitive functioning	57.4 ± 17	83.8 ± 14.5	< .0001
Social functioning	53.9 ± 14.8	80.4 ± 22.3	< .0001
Symptom scales/items			
Fatigue	40.2 ± 19.2	13.7 ± 13.4	< .0001
Nausea and vomiting	18.6 ± 17.8	7.4 ± 13.1	< .0001
Pain	18.6 ± 11.2	0.3 ± 10.4	< .0001
Dyspnoea	37.3 ± 17.9	10.8 ± 17.8	< .0001
Insomnia	47.1 ± 21.9	10.8 ± 15.8	< .0001
Appetite loss	30.4 ± 25.1	6.9 ± 13.7	< .0001
Constipation	27.5 ± 27.8	6.9 ± 16	< .0001
Diarrhoea	15.7 ± 23.6	4.9 ± 12	0.0140
Financial difficulties	41.2 ± 16.5	22.5 ± 25.6	0.0004

Table 2. Differences between post-surgical and pre-surgical score

EORTC QLQ-C30	Mean±SD	*p*-value
Global health status/QoL		
Global health status/QoL	17.2 ± 12.6	< .0001
Functional scales		
Physical functioning	18.4 ± 17.5	< .0001
Role functioning	25.5 ± 18	< .0001
Emotional functioning	36 ± 18.9	< .0001
Cognitive functioning	26.5 ± 25	< .0001
Social functioning	26.5 ± 23.6	< .0001
Symptom scales/items		
Fatigue	-26.5 ± 18.4	< .0001
Nausea and vomiting	-11.3 ± 14.6	< .0001
Pain	-18.3 ± 14.4	< .0001
Dyspnoea	-26.5 ± 24.3	< .0001
Insomnia	-36.3 ± 22.3	< .0001
Appetite loss	-23.5 ± 26.6	< .0001
Constipation	-20.6 ± 24.6	< .0001
Diarrhoea	-10.8 ± 24.2	0.0140
Financial difficulties	-18.6 ± 27.5	0.0004

using the EORTC QLQ-C30. Meningioma were selected as the subject of this study due to its high prevalence. Although most cases are histologically benign, symptoms experienced by meningioma patients can produce enough depression affecting their HRQoL[1].

Najafabadi et al used the EORTC QLQ C-30 instrument to examine the quality of life for meningioma patients[6]. Compared to other examination instruments such as the Medical Outcomes Study (MOS)[7], 36-Item Short form Health Survey (SF-36)[8], the EuroQol Five Dimensions (EG-5D)[9], and the Functional Assessment of Cancer Therapy-General (FACT-G)[10], EORTC QLQ-C30 has been validated for use in Indonesia[5]. It also has good psychometric performance with short recharge filling time for patients.

In the current comprehensive treatment concept of spheno-orbital meningioma, HRQoL has been included as one of management outcome[6,11-13]. Our study shows evidence of significant improvement in patients' HRQoL after surgery. Since HRQoL score is determined by patients' personal experience of fatigue, drowsiness, pain, seizures, mood disorders, culture, and cognitive functions, there is a need for same understanding between the neurosurgeon and the patient regarding treatment purpose. One of the comorbidities found in spheno-orbital meningioma tumor is ocular proptosis, often found in women of reproductive age[14]. Ocular proptosis may cause impaired eyeball function and facial aesthetic changes, resulting in emotional distress and depression and affecting patients' HRQoL[15]. As mentioned earlier, HRQoL is determined by patients' subjective feelings. It does not rule out that patients with either benign or malignant brain tumors can have similar experience that may be differentiated by quality. From previous studies, meningiomas as benign tumor types has been investigated along with other types of malignant tumors in HRQoL studies[6]. Although meningioma patients have better HRQoL than glioma patients, these differences are not clinically relevant.

This EORTC QLQ-C30 instrument-based study on spheno-orbital meningiomas patients managed in the Department of Neurosurgery, Dr. Cipto Mangunkusumo General Hospital, is a preliminary study of its kind in Indonesia that was conducted on the basis of previous studies utilizing similar instrument in meningioma cases[4,6,16-20]. The improvement in the patients' HRQoL is characterized by increasing components of global health status and functional scale, and decreasing symptoms experienced. In this study, a pre-and post-operative assessments were performed, where one patient did not experience any change in global health status aspect, although improvements were seen on the other aspects. In this subject, it may be necessary to consider any perception disorder since the time prior to until after the surgery.

This research data confirm that HRQoL measurement in spheno-orbita meningioma patients provide many benefits, whether assessed from clinical symptoms, functional status, or general health conditions. This is in accordance with the systematic review study by Meskal et al, stating that post-surgical meningioma patients experienced cognitive function improvement[13]. Our study population did experience improved cognitive functions in the period of 3-9 months post-surgery. From the scale of symptoms, insomnia is found to have the highest significant score compared to other variables, suggesting that pre-surgical sleeplessness are experienced by meningioma patients. This is consistent with the study by Mainio et al., which states that the prevalence of insomnia symptoms in patients with primary brain tumors is higher than in the general population and decrease significantly three months after surgery[12].

The researchers look forward for future studies on the topic of HRQoL of brain tumor patients, histologically benign or malignant, with or without therapy. Further research should be done for this EORTC QLQ-C30 score validation related to brain tumor in Indonesia. Early education about meningioma in general at the primary care level of neurosurgery, the risks of surgery, and understanding between patients and health care providers are necessary in the purpose of treatment. HRQoL evaluation reminds us as surgeons to improve our understanding of its important role in the management of both patients with benign and malignant tumors.

Conflicts of Interest

No

Acknowledgment

No

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