

Quality of Life among Stage III Colon Cancer Patients Receiving Oral and Intravenous Chemotherapy Regimens in Thailand

P. Lerdkiattikorn^{1,2,4}, N. Tantai^{1,2,4}, U. Chaikledkaew^{2,4*}, W. Lausontornsiri³, T. Khuhaprema³, P. Kingkaew⁴ and Y. Teerawattananon⁴

¹ Department of Pharmacy, Faculty of Medicine, Siriraj Hospital, Bangkok

² Division of Social and Administrative Pharmacy, Department of Pharmacy, Faculty of Pharmacy, Mahidol University, Sri-ayudhya, Bangkok

³ National Cancer Institute, Rama VI, Bangkok

⁴ Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Nonthaburi

Abstract

Health related quality of life for colon cancer is important for economic evaluation. The objective of this study was to measure health utility scores of oral and intravenous chemotherapy regimens in colon cancer patients with or without relapse in Thailand. The quality of life was measured in term of utility scores collected from colon cancer patients with or without relapse using EQ-5D questionnaire at National Cancer Institute, Bangkok, Thailand during January and April, 2010. A total of 48 colon cancer patients were classified equally into two groups (i.e., stage III colon cancer patients without relapse and those with relapse or stage IV colon cancer).

Each group included 12 patients receiving the first-line oral capecitabine monotherapy and 12 patients receiving the first-line intravenous chemotherapy (i.e., 5-FU/LV, FOLFOX and XELOX). We obtained the average utility score as followed: stage III colon cancer patients or without relapse receiving oral chemotherapy regimen (mean=0.65, Standard error, SE=0.047), stage III colon cancer patients or without relapse receiving intravenous chemotherapy regimens (mean=0.60, SE=0.063), stage IV colon cancer or with relapse receiving oral chemotherapy regimen (mean=0.62, SE=0.043), stage IV colon cancer or with relapse receiving intravenous chemotherapy (mean=0.56, SE=0.101). However, there was no statistical significant difference in the average utility scores between oral and intravenous chemotherapy regimens in cancer patients with or without relapse.

Key words: Utility, Quality of life, Stage III colon cancer, EQ-5D, Thailand

INTRODUCTION

Colorectal cancer is the third most common cancer with one million new cases worldwide and the fourth leading cause of death due to cancer in 2004¹. In Thailand, colorectal cancer is the third most frequent malignancy in males and the fifth in females with age-standardized incidence rates of 11.3 and 7.9 per 100,000 for males and females during 2001-2003, respectively². Systematic chemotherapy for colon cancer after curative resection has been used as adjuvant chemotherapy

which could significantly prolong patient's survival by decreasing relapse and death. The advantage of adjuvant chemotherapy (i.e., 5-FU combined with leucovorin) reduces recurrent rates and improves overall survival by about 33% in patients with node-positive colon cancer (stage III or Dukes' stage C)^{3,4}.

Generally cancer treatments can affect the health-related quality of life of cancer patients. Route of administration (i.e., oral and intravenous) of chemotherapy regimens can have an effect on the quality of life in colon cancer patients. Although many

*Corresponding author: Division of Social and Administrative Pharmacy, Department of Pharmacy, Faculty of Pharmacy, Mahidol University, Bangkok 10400, Thailand, Tel: 66-2-644-8677 ext 5317, Fax: 66-2-644-8694, Email: usa.chi@mahidol.ac.th

foreign studies have estimated the quality of life or utility scores of colon cancer patients, no study has been investigated and compared the utility scores of oral versus intravenous chemotherapy regimens in colon cancer patients in Thailand, yet. Thus the utility scores were collected from colon cancer patients using EQ-5D questionnaire⁵ at the National Cancer Institute (NCI) in Thailand.

MATERIALS AND METHODS

Study population

Patients were identified by review of medical chart database at the NCI during January and April, 2010. The quality of life was measured in term of utility scores collected from colon cancer patients with or without relapse using EQ-5D questionnaire. Patients who had undergone complete resection of histological stage III colon cancer as well as stage IV colon cancer were recruited. All identified patients were eligible if they met the following inclusion criteria: stage III colon cancer or patients without relapse who received the first-line adjuvant chemotherapy currently used in Thailand (i.e., 5-FU/LV, capecitabine monotherapy, fluorouracil/leucovorin/oxaliplatin (FOLFOX) and capecitabine/oxaliplatin (XELOX)) and stage IV colon cancer patients or patients with relapse who received second-line chemotherapy (i.e., irinotecan in combination with 5-FU/LV (FOLFIRI), capecitabine monotherapy, fluorouracil/leucovorin/oxaliplatin (FOLFOX) and capecitabine/oxaliplatin (XELOX)). Patients were excluded if they also received radiotherapy, combination with monoclonal antibody or other chemotherapy regimens besides mentions above. All participants obtained informed consent approved by the Committee on Human Rights Related to Research Involving Human Subjects, Mahidol University Institutional Review Board (MU-IRB), Mahidol University and National Cancer Institute, Thailand.

Based on the sample size calculation, the total of 48 colon cancer patients was classified into two groups (i.e., stage III colon cancer patients without relapse and those with relapse). The group of stage III colon cancer patients without relapse included 12 patients receiving the first-line oral capecitabine monotherapy and 12 patients receiving the first-line intravenous

chemotherapy (i.e., 5-FU/LV, FOLFOX and XELOX). The other group included 12 patients receiving the second-line capecitabine and 12 patients receiving the second-line intravenous chemotherapy such as FOLFOX, XELOX and FOLFIRI.

Data collection

Utility scores for the described health outcome states were obtained using EuroQol questionnaire, EQ-5D version in Thai context which comprises of the EQ-5D-3L descriptive system and the EQ visual analogue scale (EQ VAS). According to the EQ-5D-3L, respondents were asked about the relevance of five dimensions of health: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has three levels: no problems, some problems, extreme problems. The EQ VAS records the respondent's self-rated health on a vertical visual analogue scale where the endpoints are labelled 'Best imaginable health state' (100%) and 'Worst imaginable health state' (0%). Respondents were asked to rate their health related quality of life scores as the percentage by themselves.

Data analysis

Mean preference values and standard deviations were calculated for oral and intravenous chemotherapy in each health state. Statistical analyses were conducted using the SPSS software program to explore whether utility scores are different between oral and intravenous chemotherapy in each health state.

RESULTS AND DISCUSSION

The average utility scores of stage III colon cancer patients without relapse receiving oral chemotherapy regimen were 0.65 (Standard error, SE=0.047), while those receiving intravenous chemotherapy regimens were 0.60 (SE=0.063). In addition, the utility scores of colon cancer patients with relapse receiving oral chemotherapy regimen were 0.62 (SE=0.043), whereas those receiving intravenous chemotherapy were 0.56 (SE=0.101) (Table 1). However, there was no statistical significant difference in the average utility scores between oral and intravenous chemotherapy regimens in cancer patients with or without relapse.

Table 1. The average health utility scores of oral and intravenous chemotherapy regimens in colon cancer

Patient groups	Average health utility scores (SE)	
	Oral capecitabine	Intravenous chemotherapy (i.e., 5- FU/LV, FOLFOX and XELOX)
Stage III colon cancer or without relapse	0.65 (0.047)	0.60 (0.063)
Stage IV colon cancer or with relapse	0.62 (0.043)	0.56 (0.101)

CONCLUSION

Oral chemotherapy regimen (i.e., capecitabine) has been determined as a preferable chemotherapy compared to intravenous chemotherapy in stage III colon cancer patients with and without relapse. The utility value findings from this study would be the useful information for healthcare providers as well as the key information in assessing the cost-utility of adjuvant chemotherapy for stage III colon cancer in Thailand.

ACKNOWLEDGEMENTS

We would like to give particular thanks to the Faculty of Pharmacy, Mahidol University for research facilities, the National Cancer Institute as well as the funding support through the Health Intervention and Technology Assessment Program (HITAP) from the Thai Health Promotion Foundation, the National Health System Research Institute (HSRI) and the Bureau of Health Policy and Strategy, Ministry of Public Health. We also would like to thank all staff and study participants

at National Cancer Institute, Thailand who contributed to this study.

REFERENCES

1. World Health Organization. The global burden of disease: 2004 update. WHO, 2004.
2. Khuhaprema T, Srivatanakul P, Sriplung H, *et al.* Cancer in Thailand 2001-2003 Vol. V. 2001-2003;5.
3. Wolmark N, Rockette H, Fisher B, *et al.* The benefit of leucovorin-modulated fluorouracil as postoperative adjuvant therapy for primary colon cancer: results from National Surgical Adjuvant Breast and Bowel Project protocol C-03. *J Clin Oncol* 1993;11:1879-1887.
4. O'Connell M, Mailliard J, Kahn M, *et al.* Controlled trial of fluorouracil and low-dose leucovorin given for 6 months as postoperative adjuvant therapy for colon cancer. *J Clin Oncol* 1997;15:246-250.
5. Kind P. The EuroQol instrument; an index of health-related quality of life. Philadelphia: Lippincott-Raven, 1996.