RESEARCH ARTICLE

Colorectal Cancer in the Central Region of Thailand

Kittichet Phiphatpatthamaamphan[1], Ratha-Korn Vilaichone[1,2]

Abstract

Background: Colorectal cancer is one of the major health problems worldwide. However, limited studies have been reported from ASEAN countries. This study was conducted to evaluate clinical characteristics and survival of colorectal cancer cases aged <65 years and ≥65 years in the central region of Thailand. Materials and Methods: Clinical information, histological features, endoscopic findings and treatment outcome were collected and reviewed from Thammasat University Hospital, Pathumthani, Thailand between November 2011 and October 2015. Results: A total of 121 colorectal cancer patients, comprising 69 men and 52 women with a mean age of 65.8 years, were included. There were 57 aged <65 years and 64 aged ≥65 years. Common presenting symptoms were abdominal pain (37%), weight loss (34%) and anemia (32%). Mean duration of symptoms prior to diagnosis was 173 days. However, longer diagnosis time was demonstrated in patients aged <65 years than age more than ≥65 years (119.4 vs 58.4 days, P-value=0.30). Colonic fungating mass was the most common endoscopic finding (64.4%) and the location was significantly more commonly left than right side of the colon, both in younger and elderly groups (87.7% vs 12.3%, P=0.02 and 70.3% vs 29.7%, P=0.02, respectively). Adenocarcinoma with moderated differentiated was the most common histology (67.3%). More than half of the patients presented with advanced stage (28.9% with TNM stage 3 and 38.8% TNM stage 4, respectively). Overall 1-year and 5-year survival rates were 76.9% and 5%. Conclusions: Most colorectal cancer patients in Thailand have adenocarcinomas and present at advanced stage with poor prognosis. Screening of high risk patients and early detection might be essential factors to improve the treatment outcome and overall survival rate of colon cancer patients in Thailand and other ASEAN countries.

Keywords: Colorectal cancer - symptoms - endoscopic findings - histopathology - stage - survival - Thailand

Introduction

Colorectal cancer (CRC) is a major cause of cancer-associated morbidity and mortality worldwide. Globally, colorectal cancer is the third most common cancer in men and the second most common in women. More than a million new colorectal cancer cases and approximately 600,000 related deaths have been occurred in 2008 (Jemal et al., 2011). The lifetime risk of developing colorectal cancer in the general population was 5% in both sexes (Jemal et al., 2010). Over a few decades, the incidence of colorectal cancer has been increasing in many ASEAN countries including Thailand, in which colorectal cancer is third most common cancer in males and fifth in females (Ferlay et al., 2013), the second most common cancer in Malaysia (Magaji et al., 2014) and the third most common cancer in Indonesia (Sudoyo et al., 2014). In Brunei Darussalam, there are increasing incidences of colorectal cancer, starting at a younger age (Chong et al., 2015). Recent Indonesian study indicated that this cancer might be as high as 16% in unselected colonoscopy patients (Sudoyo et al., 2014). However, colorectal cancers were lower in Muslim compared to Buddhist patients indicated that religion- related culture might be influence in the cancer development (Sriplung et al., 2014). The crude rate of colorectal cancer in Thai people was 9 per 100,000 in male and 7 per 100,000 in female. Colorectal cancer seems increasing in Thailand probably due to acquisition of the Western lifestyle.

In ASEAN, there are limited number of studies on prevalence, clinical characteristics and overall survival rate of colorectal cancer. We designed this study to evaluate the prevalence, clinical characteristics and overall survival rate of colorectal cancer patients. We have also compared clinical characteristics and outcome of treatment between age <65 years and age ≥65 years with colorectal cancer in the Central region of Thailand.

Materials and Methods

Patients diagnosed as colorectal cancer by histopathology evaluation at Thammasat University Hospital, Pathumthani, Thailand between November 2011- October 2015 were included. Clinical findings,

*[1]Gastroenterology Unit, Department of Medicine, Faculty of Medicine, Thammasat University Hospital, [2]National Gastric Cancer and Gastrointestinal Diseases Research Center, Pathumthani, Thailand *For correspondence: Vilaichone@hotmail.co.th*

Kittichet Phiphatpatthamaamphan and Ratha-Korn Vilaichone

Table 1. Baseline Characteristics and Duration of Symptoms of all Colorectal Cancer (CRC) Patients

Characteristics	Age<65 years (N=57)	Age≥65 years (N=64)	P-value
Mean age (range)	55(34-64)	75.3 (65-93)	
Male : Female	37:20	32:32	0.09
Underlying diseases			
- Type2DM	6(10.5%)	25(39.1%)	0.003
- Hypertension	16(28.1%)	44(68.8%)	<0.0001
- Dyslipidemia	13(22.8%)	30(46.9%)	0.006
- Coronary artery disease	0	8(12.5%)	0.006
- Chronic renal failure	0	6(9.4%)	0.02
Family h/o of CRC	3(5.3%)	4(6.3%)	0.82
Duration of symptoms (days)	119.4	58.4	0.3

Table 2. Clinical Presentation in Each Age Group

*Clinical presentations	Age<65 years (N=57)	Age≥65 years (N=64)	P-value
-Abdominal pain	24(42.1%)	21(32.8%)	0.29
-Weight loss	22(38.6%)	19(29.7%)	0.3
-Anemia	12(21.1%)	27(42.2%)	0.01
-Abdominal mass	16(28.1%)	11(17.2%)	0.15
-Bowel habit change	8(14%)	14(21.9%)	0.26
-Anorexia	8(14%)	8(12.5%)	0.8
-Hepatomegaly	7(12.3%)	2(3.1%)	0.06
-Gut obstruction	4(7%)	3(4.7%)	0.58
-Rectal bleeding	6(10.5%)	1(1.6%)	0.04
-Melena	1(1.8%)	5(7.8%)	0.13

Table 3. Endoscopic Features, Location and Histological Findings in Each Age Group

*Endoscopic feature	Age<65 years	Age≥65 years	P-value
- Fungating mass	20(64.5%)	27(64.3%)	0.98
- Ulcerative mass	8(25.8%)	13(31%)	0.63
- Polyp like lesion	3(9.7%)	2(4.8%)	0.41
**Location of CRC			
- Right-side colon	7 (12.3%)	19(29.7%)	0.02
- Left-side colon	50(87.7%)	45(70.3%)	0.02
***Histological finding			
- Well differentiated	16/48(33.3%)	11/56(19.6%)	0.11
- Moderate differentiated	28/48(58.3%)	42/56(75%)	0.07
- Poorly differentiated	4/48(8.3%)	3/56(5.4%)	0.55

*N= 73, ** N= 121 and ***N=104

Table 4. Staging and Survival Rates for Each Age Group

TNM staging	Age<65 years (N=57)	Age≥65 years (N=64)	P-value
- I (13; 10.7%)	4(7%)	9(14.1%)	0.21
- II(26; 21.5%)	14(24.6%)	12(18.8%)	0.44
- III (35; 28.9%)	17(29.8%)	18(28.1%)	0.84
- IV (47; 38.8%)	22(38.6%)	25(39.1%)	0.96
Survival rate			
1-year survival rate	47(82.5%)	46(71.9%)	0.15
5-year survival rate	5(8.8%)	1(1.6%)	0.23

endoscopic information, histopathology, and treatment outcome of colorectal cancer patients were recorded. Endoscopic features of colorectal cancer were evaluated as fungating mass or ulcerative mass or polyp. The location of tumor was classified as right side colon (cecum, ascending colon, and hepatic flexure colon) and left side colon (transverse colon to rectum). The colorectal cancer was classified histology according to well or moderate or poorly differentiated adenocarcinoma. Staging of colorectal cancer was evaluated according to TMN staging system.

Statistical analysis

The statistical analysis was performed by using SPSS for Windows Version 22.0 (IBM Corp., Armonk, NY). The clinical information of all patients was compared by independent-test or Chi-square test or Fisher's exact test where appropriate. The cumulative probability of mortality was computed using the Kaplan-Meier method and compared by the log-rank test. The P-value less than 0.05 were considered to be statistically significant. The study was conducted according to the good clinical practice guideline, and was approved by ethics committee of Thammasat University Hospital, Pathumthani, Thailand.

Results

Total of 121 patients with colorectal cancer were enrolled in this study. There were 69 males and 52 females with a male to female ratio of 1.3:1. The mean age was 65.8 years (range 34-93 years). There were 57 patients with age< 65 years and 64 patients with age ≥ 65 years. The family history of colorectal cancer was detected in 7/121 (5.8%). Mean duration of symptoms prior to diagnosis was 173 days. Male was significantly more common than female patients in patients with age< 65 years. Underlying diseases such as dyslipidemia, type 2DM, hypertension, coronary artery disease and chronic renal failure were significantly more common in patients with age ≥ 65 years. Baseline characteristics of all colorectal cancer patients demonstrated in table 1. Common presenting symptoms were abdominal pain (37%), weight loss (34%), anemia (32%), abdominal mass (22.3%) and bowel habit change (18.2%). Anemia was significantly more common in older age group whereas rectal bleeding was significantly more common in younger age group as detail in table 2.

The major endoscopic features of colorectal cancer were fungating mass (64.4%) follow by ulcerative mass (28.8%) and polyp (6.8%). The location of cancer was detected at right side colon in 26/121 (21.5%) and left side colon in 95/121 (78.5%). The pathological finding of all colorectal cancer patients was adenocarcinoma. For location of cancer, left-side colon was significantly more common in both younger and elderly groups. In addition, well differentiated was demonstrated in 27/104
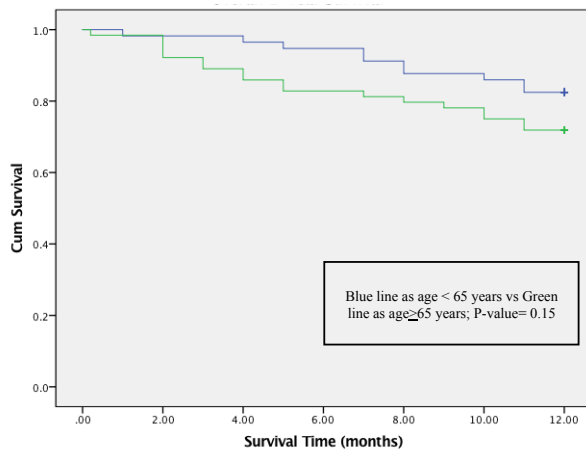
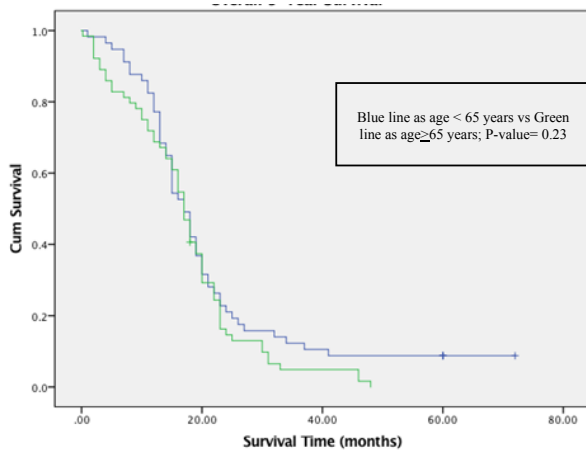**Figure 1. Kaplan-Meier Plot of Overall 1-year Survival**

Figure 2. Kaplan-Meier Plot of Overall 5-year Survival

(26%), moderated differentiated in 70/104 (67.3%), poorly differentiated in 7/104 (6.7%) and were not different between younger and older ager group as shown in table 3. Most of the patients presented with advanced stage (28.9% with TNM stage 3 and 38.8% TNM stage 4, respectively). 1-year and 5-year survival rate in patients with age< 65 years and age ≥ 65 years were not different. Overall 1-year and 5-year survival rate was 76.9% and 5% as in table 4. Kaplan-Meier survival plot of overall 1-year and 5-year survival rates were demonstrated in figure 1and 2, respectively.

Discussion

Colorectal cancer become more prevalence cancer in Thailand and recently ranks as the third most common cancer in males and fifth in females (Ferlay et al., 2013). The explanation might be from sedentary lifestyle, lack of physical activity, smoking, alcoholic drinking, high consumption of red and processed meats as well as a low consumption of whole grains, fiber, fruits and vegetables (Khuhaprema et al., 2014; Song et al., 2015). Previous studies demonstrated that colorectal cancer was not associated with sex (Khuhaprema et al., 2008; Wirasorn et al., 2015; Baghestani et al., 2016) same as our result. The mean age of patients in this study was 65.8 years which was higher than patients in Northeastern of Thailand (58 years) (Wirasorn et al., 2015).

Underlying disease were significantly more common in the elderly than younger groups compatible with natural history of the elderly that has higher chances of acquired diseases (eg.T2DM, HTN, DLP) than younger. Moderately differentiated adenocarcinoma was the most common cancer type. Furthermore, more than half of our patients presented with advanced stage that could be explained grave prognosis in this study. Left side was significantly more common than right side cancer which was not different from previous reports (Elsamany et al., 2014; Kumar et al., 2015). The overall survival rate of colorectal cancer patients was 15.2 and 10.7 months in younger and elderly groups. These results were shorter than previous study in Northeastern Thailand that reported of 36.8 months (Wirasorn et al., 2015). The reason might be from the fact that our hospital is the tertiary health care center, which receives many referral advanced cancer cases from nearby areas in the Central region of Thailand. Tumor necrosis factor has been found to be an important factor in anti-cancer therapy. Recent study in Thailand demonstrated that combination of nimbolide and TNF-α- may increase human colon adenocarcinoma cell death and could be impact for future treatment of this cancer (Chantana et al., 2016). The study from Malaysia supported current evidence that adjuvant chemotherapy could be improved survival even in Dukes C colon cancers (Hassan et al., 2015). Fecal immunochemical occult blood test (FIT) has been reported to be a good screening method for colorectal cancer in Singapore (Tan et al., 2013) and might be applying to use as effective tool for colorectal screening in ASEAN.

This study indicated that colorectal cancer in the Central region of Thailand had presented in advanced stage with poor prognosis. Early recognition, better screening program especially in high risk patients such as family members of colorectal cancer (esp. 1st degree relationship), age >50 years, patients with alarming symptoms, previous documents of precancerous lesions (eg. adenomatous polyp) should be initiated in general hospital to improve the survival rate and treatment outcome of colon cancer patients in Thailand and ASEAN countries.

References

Baghestani AR, Daneshvar T, Pourhoseingholi MA, et al (2016). Survival of colorectal cancer in the presence of competing risks - modeling by Weibull distribution. *Asian Pac J Cancer Prev*, **17**, 1193-6.

Chantana C, Yenjai C, Reubroycharoen P, et al (2016). Combination of nimbolide and TNF-α-increases human colon adenocarcinoma cell death through JNK-mediated DR5 up-regulation. *Asian Pac J Cancer Prev*, 17, 2637-41.

Chong VH, Telisinghe PU, Bickle I, et al (2015). Increasing incidence of colorectal cancer, starting at a younger age for rectal compared to colon cancer in Brunei Darussalam. *Asian Pac J Cancer Prev*, **16**, 5063-7.

Elsamany SA, Alzahrani AS, Mohamed MM, et al (2014). Clinico-pathological patterns and survival outcome of colorectal cancer in young patients: Western Saudi Arabia experience. *Asian Pac J Cancer Prev*, **15**, 5239-43.

Ferlay J, Soerjomataram I, Ervik M, et al (2013). GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide:

Kittichet Phiphatpatthamaamphan and Ratha-Korn Vilaichone

IARC CancerBase No.11. International Agency for Research on Cancer. internet. Retrieved May 13, 2014, from http://globocan.iarc.fr

Hassan AS, Naicker M, Yusof KH, et al (2015). Prognostic factors and the role of adjuvant chemotherapy in post-curative surgery for Dukes B and C coloncancers and survival outcomes: a Malaysian experience. *Asian Pac J Cancer Prev*, **16**, 2237-43.

Jemal A, Bray F, Center MM, et al (2011). Global cancer statistics. *CA Cancer J Clin*, **61**, 69-90.

Jemal A, Siegel R, Xu J, Ward E (2010). Cancer statistics. *CA Cancer J Clin*, **60**, 277-300.

Khuhaprema T, Srivatanakul P (2008). Colon and Rectum Cancer in Thailand: An Overview. *Jpn J Clin Oncol*, **38**, 237–43.

Khuhaprema T, Sangrajrang S, Lalitwongsa S, et al (2014). Organised colorectal cancer screening in Lampang Province, Thailand: preliminary results from a pilot implementation programme. *BMJ Open*, **4**, 3671.

Kumar S, Burney IA, Zahid KF, et al (2015). Colorectal cancer patient characteristics, treatment and survival in Oman - a Single Center Study. *Asian Pac J Cancer Prev*, **16**, 4853-8.

Magaji BA1, Moy FM, Roslani AC, et al (2014). Descriptive epidemiology of colorectal cancer in University Malaya Medical Centre, 2001 to 2010. *Asian Pac J Cancer Prev*, **15**, 6059-64.

Sudoyo AW, Lesmana CR, Krisnuhoni E, et al (2014). Detection rate of colorectal adenoma or cancer in unselected colonoscopy patients: Indonesian experience in a private hospital. *Asian Pac J Cancer Prev*, **15**, 9801-4.

Song Y, Liu M, Yang FG, et al (2015). Dietary fiber and the risk of colorectal cancer: a case control study. *Asian Pac J Cancer Prev*, **16**, 3747-52.

Sriplung H, Bilheem S, Kuntipundee T, et al (2014). Differences in cancer incidence among predominantly Muslim and Buddhist subpopulations in Songkhla. *Asian Pac J Cancer Prev*, **15**, 9979-83.

Tan WS, Tang CL, Koo WH (2013). Opportunistic screening for colorectal neoplasia in Singapore using faecal immunochemical occult blood test. *Singapore Med J*, **54**, 220-3.

Wirasorn K, Saeyntong C, Paonariang K, et al (2015). The overall survival of colon cancer patients in Srinagarind Hospital: 2000-2010, hospital based population. *Srinagarind Med J*, **30**, 103-9.