นิพนธ์ต้นฉบับ • Original Article

อัตราการรอดชีวิตโดยรวมของผู้ป่วยมะเร็งลำไส้ใหญ่ในโรงพยาบาลศรีนครินทร์: 2543-2553, ทะเบียนมะเร็งโรงพยาบาล

โกสินทร์ วิระษร[1,5], ฉลองพล สารทอง[2], กฤษฎา เปานาเรียง[3,5], วิยะดา ปัญจรัก[4,5*]
[1]หน่วยมะเร็ง, ภาควิชาอายุรกรรม, คณะแพทยศาสตร์, มหาวิทยาลัยขอนแก่น
[2]หน่วยมะเร็ง, โรงพยาบาลศรีนครินทร์
[3]หน่วยศัลยกรรมทั่วไป, ภาควิชาศัลยศาสตร์, คณะแพทยศาสตร์, มหาวิทยาลัยขอนแก่น
[4]ภาควิชาสรีรวิทยา, คณะแพทยศาสตร์, มหาวิทยาลัยขอนแก่น
[5]มหาวิทยาลัยขอนแก่น, กลุ่มวิจัยมะเร็งแบบองค์รวม

The Overall Survival of Colon Cancer Patients in Srinagarind Hospital: 2000-2010, Hospital Based Population

Kosin Wirasorn[1,5], Chalongpon Saeyntong[2], Krisada Paonariang[3,5], Wiyada Punjaruk[4,5,*]
[1]Division of Oncology, Department of Medicine, Faculty of Medicine, Khon Kaen University
[2]Cancer Unit, Srinagarind Hospital
[3]Division of General Surgery, Department of Surgery, Faculty of Medicine, Khon Kaen University
[4]Department of Physiology, Faculty of Medicine, Khon Kaen University
[5]Khon Kaen University, Comprehensive Cancer Research Group (KKU CCRG)

หลักการและวัตถุประสงค์: มะเร็งลำไส้ใหญ่เป็นมะเร็งที่พบบ่อยทั่วโลกรวมทั้งประเทศไทย วัตถุประสงค์ของการศึกษานี้เพื่อศึกษาระยะเวลาการรอดชีวิตและทางเลือกในการรักษาของผู้ป่วยมะเร็งลำไส้ใหญ่ในโรงพยาบาลศรีนครินทร์ในระหว่างปี พ.ศ. 2543-2553

วิธีการศึกษา: ทำการศึกษาในผู้ป่วยมะเร็งลำไส้ใหญ่รายใหม่ที่ได้ลงทะเบียนในโรงพยาบาลศรีนครินทร์ระหว่างวันที่ 1 มกราคม 2543 ถึงวันที่ 31 ธันวาคม 2553 ข้อมูลที่นำมาศึกษาจากระบบการลงทะเบียนผู้ป่วยมะเร็งของจังหวัดขอนแก่น ลักษณะทางคลินิกของผู้ป่วยและระยะเวลาการรอดชีวิตได้ถูกนำมาวิเคราะห์ทางสถิติ

ผลการศึกษา: จำนวนผู้ป่วยมะเร็งลำไส้ใหญ่รายใหม่ในภาพรวมเพิ่มขึ้นร้อยละ 5 ทั้งเพศชายและหญิง (ร้อยละ 3 ในเพศชายและร้อยละ 7 ในเพศหญิง) กลุ่มตัวอย่างมีค่ามัธยฐานของอายุเป็น 59 ปีในเพศชายและ 57 ปี ในเพศหญิง ระยะที่ 4 ของโรคเป็นระยะที่พบบ่อยที่สุด (ร้อยละ 35.85) และระยะที่ 3 เป็นระยะที่พบมากเป็นอันดับสอง (ร้อยละ 12.56) การศึกษานี้ พบว่า ตำแหน่งที่พบการแพร่กระจายไปมากที่สุด คือ ตับ (ร้อยละ 33.42) ระยะเวลาการรอดชีวิตโดยรวมของผู้ป่วยมะเร็งลำไส้ใหญ่ทุกระยะ คือ 36.84 เดือน ในขณะที่ระยะที่ 1-3 ยังไม่ถึงค่ามัธยฐานของระยะเวลาการรอดชีวิต

Background and Objective: Colon cancer is frequently found especially in elderly worldwide including Thailand. The aims of this study are to study the survival time and the treatment of choice for colon cancer patients in Srinagarind Hospital during 2000-2010.

Material and Method: All new colon cancer cases registered in Srinagarind Hospital between January 1st, 2000 and December 31st, 2010 were included in this study. Our data were obtained from the Khon Kaen Cancer Registry. The characteristics of patients and survival time were analysed.

Results: The overall increment of new colon cancer cases was 5% in both genders (3% in male and 7% in female). The mean age of patients was 59 and 57 years in male and female, respectively. Stage IV was the most common stage (35.85%) presented in colon cancer patients at the first diagnosis and stage III was the second most common (12.56%). This study revealed that the most common site of distant metastasis was liver (33.42%). The overall survival rate of all stages of colon

***Corresponding author:** Wiyada Punjaruk, Department of Physiology, Faculty of Medicine, Khon Kaen University
E-mail : pwiyad@kku.ac.th

สรุป: แนวโน้มผู้ป่วยมะเร็งลำไส้ใหญ่รายใหม่เพิ่มขึ้นทุกปี หากได้รับการวินิจฉัยในระยะเริ่มต้นและได้รับการรักษาตามมาตรฐานสำหรับผู้ป่วยมะเร็งลำไส้ใหญ่ ระยะเวลาการรอดชีวิตอาจจะเพิ่มขึ้นและการพยากรณ์ของโรคน่าจะดีขึ้นด้วย

คำสำคัญ: มะเร็งลำไส้ใหญ่, ระยะเวลาการรอดชีวิต, โรงพยาบาลศรีนครินทร์

cancer patients was 36.84 months while these data could not be analysed in patients with stage I-III because all these patients still were alive and did not reach the analytical point.

Conclusion: The trends of new colon cancer cases gradually increase every year. If the early stages of colon cancer can be recognised and adequate standard treatment is available for all colon cancer patients, survival time of patients might be longer and the prognosis of patients is possibly improved.

Key words: Colon cancer, survival time, Srinagarind hospital

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Introduction

Colon cancer is the third most common cancer worldwide. Similarly, it is the third most common cancer in male patients in Thailand whereas it is the fifth place of the most common cancer in female[1-3]. The major risks of colon cancer are the family history of colon cancer, inadequate fiber-rich food consuming, and inflammatory bowel disease (IBD)[4-6]. Colon cancer patients can present with various clinical features such as no symptom, constipation, bleeding per rectum and iron deficiency anemia. The stages of colon cancer are classified into 4 stages based on the classification of American Joint Committee on Cancer (AJCC)/International Union Against Cancer (UICC) staging system[7]. Stage I of colon cancer is described as the mass located no deeper than submucosa. If tumor mass invades throughout the colon layers without nodal involvement, this is classified as stage II. When regional lymph node is involved, this is defined as stage III. Stage IV is designated when colon cancer distantly spreads to other organs especially liver. The stages of colon cancer are a significant factor which is very helpful to indicate the appropriate treatment for colon cancer patients[8]. For the early stages of colon cancer (stage I-III), the optimal standard treatment for these patients is surgery whereas adjuvant chemotherapy provides benefits for colon cancer patients who have high risks of cancer recurrence such as lymph node metastasis, clinical presentation with gut obstruction or perforation, and inadequate lymph node assessment. Conversely, the optimal treatment for patients with distant metastasis is chemotherapy or chemotherapy combining with molecular targeted therapy. The main chemotherapeutic agent, which is commonly used to treat colon cancer patients, is 5-FU based regimen.

Srinagarind hospital is a tertiary health care center covering patients in the Northeast (NE) Thailand. The hospital also receives all referred cases from all over the region within the NE; therefore, it provides health service for population of around 22 million people. Malignant diseases are advanced and complicated conditions, which require the tertiary health care center for appropriate treatment. Additionally, Srinagarind hospital is a major tertiary health care center comprising many subspecialty expertise physicians on malignancy; hence, most cancer cases in the NE are referred to Srinagarind Hospital to receive the proper management.

The aims of this study are to study the survival time and treatments of choice for colon cancer patients in Srinagarind hospital during 2000-2010.

Materials and Methods

Case definition:

All new colon cancer cases registered in Srinagarind Hospital between January 1st, 2000 and December 31st, 2010 were included in this study. This study is officially approved by the Khon Kaen University Ethics Committee for Human Research based on the Declaration of Helsinki and the ICH Good Clinical Practice Guidelines with HE571238 of reference number.

Sources of data:

Srinagarind hospital, Khon Kaen university (a thousand-bed university hospital), Khon Kaen, Thailand, is situated in the center of NE Thailand and accepts all referred cases from other health care centers in this region. Our data were obtained from the Khon Kaen Cancer Registry, which has recorded data of all cancer cases treated in this hospital since 1987. All data were verified, checked for coding duplication and entered into the CANREG software (Version 4, available from http://www.iacr.com.fr/canreg4.htm). The data are normally collected from each cancer patient including age, sex, date of birth, date of diagnosis, method of diagnosis, primary site of cancer, extension or metastasis, histology of cancer, date of last visit, survival status at last follow-up and other necessary information. However, only relevant data were presented in this study.

Statistical analysis

The survival time was defined since the date of diagnosis to the date of last follow up or death from any causes. The data were analysed using Poisson regression to determine the trends of new case number throughout the study period. Patients' characteristics were presented as mean and percentage. The cumulative survival rate is presented by the Kaplan Meier curve. Comparison of the median survival based on the stages of disease was analysed using Log-rank test. The statistical analyses were performed using statistical program R, version 3.1.1 (http://www.R-project.org/). If p is less than 0.05, it was considered statistical significance. The study was complete for analysis in June 2014.

Results

The number of new colon cancer cases was stable since 2000 then such number has accelerating increase especially after 2003 in both genders as presented in Figure 1. The number of colon cancer patients was presented in Table 1. The overall increasing number of new colon cancer cases was about 5% in both genders (3% in male and 7% in female). The number of new colon cancer cases in both male and female was comparable. Noticeably, it slightly declined during 2003-2005. At the end of study, the frequency of new colon cancer cases was approximately 80 cases/year in both genders.

The ratio of new cancer cases, which are diagnosed as colon cancer, is 1,194: 49,763 (1: 41.67) or 2.40% of all cancer cases and the proportion of male:female is 1.1:1 shown in Table 2. Additionally, the trends of new colon cancer cases gradually increased in both male and female. The data revealed that colon cancer was frequently occurred at the age of 60 years old in male and 58 years old in female. In addition, the mean age of colon cancer patients was 59 and 57 years old in male and female, respectively. The majority of colon cancer patients had final diagnosis confirmed by the results of pathological findings (814/1,194 = 68.17%). Colon cancer patients were usually presented with the late stage of disease. Stage IV was the commonest stage presented in patients at the first diagnosis and stage III was the second most common. This study revealed that the commonest site of distant metastasis in colon cancer was liver (33.42%). Lungs or pleura and peritoneum were the second and the third common sites for distant metastasis (11.22% and 18.88%, respectively). More than half of colon cancer patients were undergone surgery and 35.2% of colon cancer patients received chemotherapy.

The overall survival time of colon cancer patients including all stages was 36.84 months (95% confidence interval (CI), 2.47, 4.64; $p < 0.05$) presented in Figure 2. Colon cancer patients with stage I-III had fairly better survival rate compared to patients with stage IV of disease and more than half of patients with stage I-III were still alive after 5 years of diagnosis. The median

Table 1 The number of new colon cancer patients in Srinagarind Hospital during 2000-2010

Year	Colon cancer patients		
	Male	Female	Median(Age)
2000	61	37	61
2001	57	41	55
2002	53	44	57
2003	31	39	60.5
2004	55	40	56
2005	39	50	59
2006	59	44	59
2007	66	56	59.5
2008	69	62	61
2009	66	76	60
2010	74	75	62

Table 2 The demographic data of colon cancer patients

Variables	Number (%)
Sex = male: female	630:564
	Male: 52.8%
	Female: 47.2%
Age (yr): Mean (SD)	Male: 59.2(12.5)
	Female: 57.6(13.6)
Basis of diagnosis	Clinical = 5.36%
	Endoscopy & Radiology = 14.49%
	Surgery without histology = 6.11%
	Specific biochem/Immuno test = 1.76%
	Cytology = 0.50%
	Histology of Metastasis = 3.60%
	Histology of primary = 68.17%
Staging	Stage 1 = 2.43%
	Stage 2 = 8.12%
	Stage 3 = 12.56%
	Stage 4 = 35.85%
	NA = 41.04%
Metastatic sites	Lymph nodes: 10.71%
	Bone: 3.06%
	Liver: 33.42%
	Lung or pleura: 11.22%
	Brain: 1.53%
	Peritoneum: 18.88%
	Others: 12.24%
	Multiple: 8.93%
Treatment	Surgery: 61%
	Chemotherapy: 35.2%
	Radiation: 3.8%

NA: Not available

survival time of patients with stage IV was 12.38 months while the median survival time could not be analysed in patients with stage I-III because patients still were alive and did not reach the analytical point. Consequently, the median survival time of patients with stage I-III could not be obtained. Five-year survival rate was analysed only in patients with stage I-III because the majority of stage IV colon cancer patients died within 5 years after diagnosis. The overall 1-, 3- and 5-year survival rate of colon cancer patients including all stages were 73%, 50% and 42%, respectively.

Discussion

This study revealed that colon cancer was commonly found in Thailand similar to the cancer trends in the Western countries[9]. However, new cases of colon cancer has less frequency compared to the Western countries because the food consuming style is different among the Asian countries and the Western countries[1,3,9]. Additionally, high fat diet consuming which is a major risk factor of colon cancer is commonly found in the Western countries for their daily life[10-12]. In the Western countries, females are presented with colon cancer at a higher frequency than male whilst a number of new colon cancer cases in both male and female was comparable in Thailand[13-14]. It is possibly explained that female from the Western countries has a higher rate of obesity and high frequency of high fat diet consuming compared to Asian female [15-17]. The trend of colon cancer during the last decade in Srinagarind hospital was stable at approximately a hundred cases per year, which is comparable with the previous report studied in Thailand[18]. Intriguingly, the number of new colon cancer cases were strikingly risen almost 50 percentage during the last few years of study (approximately 150 cases/ year). This is possibly because the medical referral system including payment system from the primary or secondary health care hospitals to the tertiary health care hospitals is effectively improved during the last few years. Consequently, more cancer patients which are complicated condition, including colon cancer are referred to Srinagarind hospital to receive more specific treatment. The results showed that patients presented

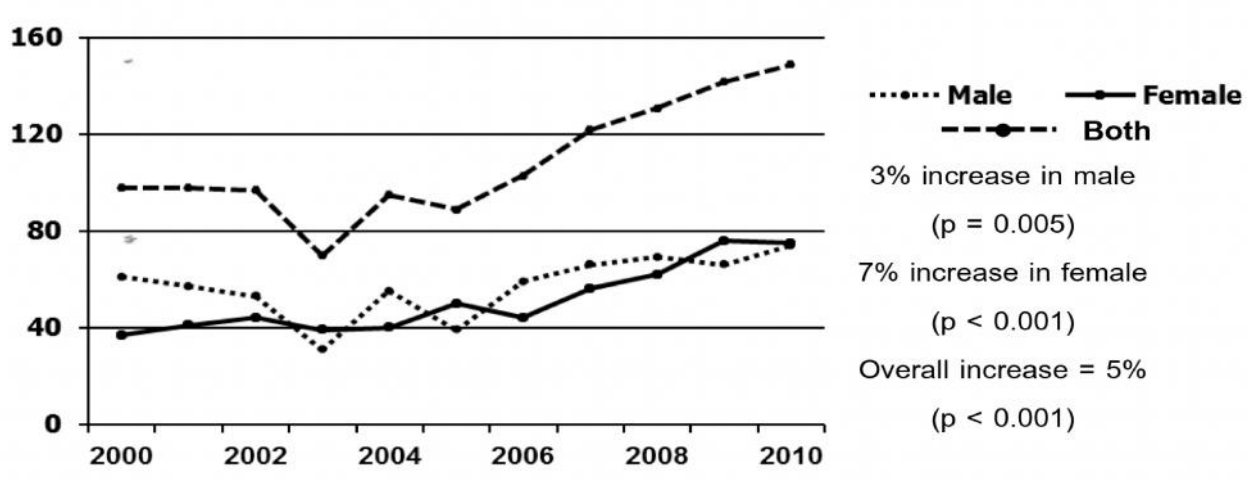

Figure 1 Trend of new colon cancer cases studied in Srinagarind Hospital during 2000-2010

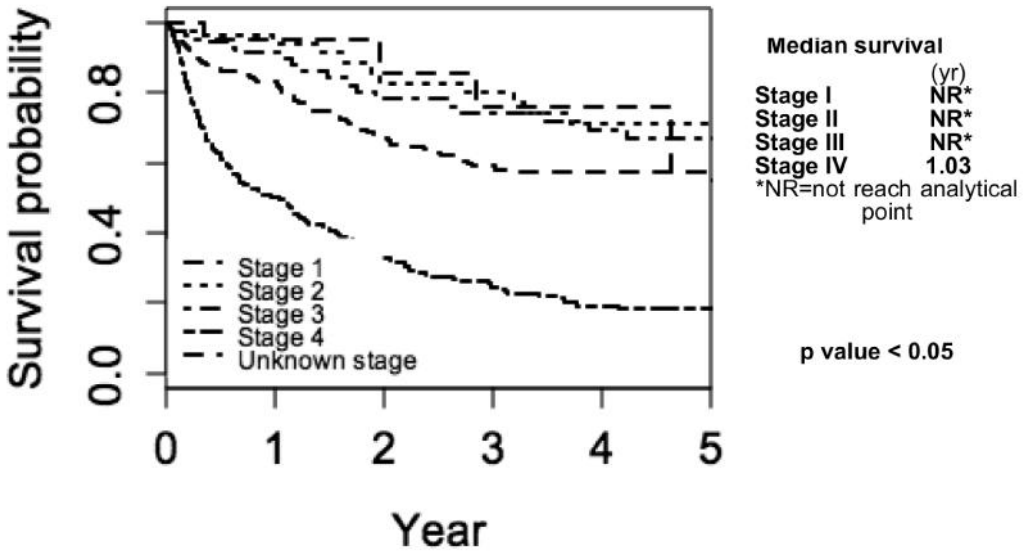

Figure 2 The overall survival rate of colon cancer patients in Srinagarind Hospital during 2000-2010

with the early stage of disease were found in extremely less frequency compared to the late stage of disease. Additionally, these results were inconsistent with the previous studies[19]. This might be because Srinagarind Hospital is the tertiary health care center, which receives all referral cases especially all cancer cases from all regions within the Northeast Thailand. Most of referral cases are complicated and have advanced stages of diseases. Consequently, a number of new colon cancer cases had such a high proportion of advanced stages rather than the early stages. For treatment modalities of colon cancer, surgery was still the principal treatment modality for colon cancer patients and the second choice of treatment was chemotherapy. To get a better treatment outcome and longer survival time, tumor tissues should be removed as much as possible to decrease the risk of tumor recurrence. The survival time of the early stages of colon cancer patients reported from this study was consistent with the previous studies[20]. Interestingly, the survival time of colon cancer patients with stage IV was longer than the report of previous studies[21-23]. However, it still has no proper

explanation for this phenomenon why stage IV colon cancer patients in Srinagarind Hospital had a longer survival rate than the previous studies. Therefore, further studies should be performed in terms of treatment modalities or genetic analysis relating to survival time.

Conclusion

The trends of new colon cancer cases gradually increase each year. If the early stages of colon cancer can be recognised and adequate standard treatment is available for all colon cancer patients, survival time of patients might be longer and the prognosis of patients is possibly improved.

The limitation of the study

This study is the retrospective study; therefore, some items of patients' data collected were not completely recorded. Particularly, the stages of disease were not revealed in almost half of colon cancer patients. The results of overall survival rate of colon cancer patients might inaccurate and could not appropriately represent the colon cancer situation in Srinagarind Hospital as a whole.

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