

**UNIVERSITI SAINS MALAYSIA
GERAN PENYELIDIKAN UNIVERSITI
PENYELIDIKAN
LAPORAN AKHIR**

**A STUDY ON KNOWLEDGE ATTITUDE AND PRACTICE OF
COLORECTAL CANCER SCREENING IN WEST MALAYSIA**

PENYELIDIK

DR. HARMY MOHAMED YUSOFF

PENYELIDIK BERSAMA

**DR. NORWATI DAUD
DR. NORHAYATI MOHD NOOR
DR. AMRY ABD RAHIM
DR. JUSOH AWANG AWANG SENIK (KEMENTERIAN
KESIHATAN MALAYSIA)**

2013

Please email a copy of this report to rcmo@usm.my

Sila emel salinan laporan ini ke rcmo@usm.my

A. PARTICULARS OF RESEARCH / MAKLUMAT PENYELIDIKAN:

(i) **Title of Research: A STUDY ON KNOWLEDGE ATTITUDE AND PRACTICE OF COLORECTAL CANCER SCREENING IN WEST MALAYSIA**

Tajuk Penyelidikan:

(ii) **Account Number:1001/PSK/8120241**

Nombor Akaun:

B. PERSONAL PARTICULARS OF RESEARCHER / MAKLUMAT PENYELIDIK:

(i) **Name of Research Leader: DR HARMY BIN MOHAMED YUSOFF**

Nama Ketua Penyelidik:

Name of Co-Researcher: :

Dr. Norwati Bt. Daud

Dr. Norhayati Bt. Mohd Noor

Dr. Amry Bin Abd Rahim

Dr. Jusoh Awang Bin Awang Senik (Kementerian Kesihatan Malaysia)

Nama Penyelidik Bersama:

(ii) **School/Institute/Centre/Unit: JABATAN PERUBATAN KELUARGA, PUSAT PENGAJIAN SAINS PERUBATAN,**

Pusat Pengajian /Institut/Pusat/Unit:

D. Duration of this research:

Tempoh masa penyelidikan ini:

From : 19.OKTOBER 2007 To : 31 JANUARI 2011

E. ABSTRACT OF RESEARCH

(An abstract of between 100 and 200 words must be prepared in **Bahasa Malaysia and in English**. This abstract will be included in the Annual Report of the Research and Innovation Section at a later date as a means of presenting the project findings of the researcher/s to the University and the community at large)

Abstrak Penyelidikan

(Perlu disediakan di antara 100 - 200 perkataan di dalam **Bahasa Malaysia dan juga Bahasa Inggeris**.)

Abstrak ini akan dimuatkan dalam Laporan Tahunan Bahagian Penyelidikan & Inovasi sebagai satu cara untuk menyampaikan dapatan projek tuan/puan kepada pihak Universiti & masyarakat luar).

In Malaysia, colorectal cancer accounts for 14.2% of male cancers making it the commonest cancer in males. It is the third most common cancer among women (10.1% of female cancers). It is proven that mortality due to colorectal cancer and incidence of malignant neoplasm can be effectively reduced with early diagnosis. However despite the availability of screening modalities, almost 80% of Malaysian sought treatment for cancer only when they were already in late stage. It could be due to patient's ignorance or negative attitude of the primary health care persons toward colorectal cancer screening.

This study was conducted to determine the knowledge, attitude and practice of colorectal cancer screening among primary health care providers and moderate risk patients in west Malaysia. It is a cross sectional study involving 44 Health clinic in West Malaysia. A total of 116 primary health care providers and 1905 moderate risk patients were enrolled in this study.

Generally the understanding about colorectal cancer screening is very low among moderate risk patient. Only 7 % of them know about FOBT and colonoscopy and only 3 % of them had good attitude score. We also found that only 0.7 % of patient who should undergone screening had it done. For primary health care providers, despite having reasonable knowledge on colorectal cancer screening, their attitude score is very low. Only 1.7 % of them had good attitude score. Only 20 % of them are performing some form of colorectal cancer screening in their practice.

Di Malaysia, pervalen kanser kolorektal adalah 14.2 % dan merupakan kanser yang paling kerap berlaku dalam kalangan lelaki. Manakala dalam kalangan wanita pula prevalennya adalah 10.1 dan merupakan kanser ketiga kerap. Diagnosis di peringkat awal terbukti dapat menurunkan kadar mortalitinya dan juga menurunkan risiko insiden tumor yang malignan ini. Walaupun sudah terdapat cara untuk mengesan kanser ini tetapi lebih 80 % rakyat Malaysia mendapatkan rawatan hanya setelah kanser ini berada di peringkat yang teruk. Ini berkemungkinan disebabkan oleh kejahilan pesakit itu sendiri ataupun mungkin disebabkan oleh sikap negatif personel kesihatan di peringkat primer.

Kajian ini dijalankan dengan tujuan untuk mengkaji tahap pengetahuan, sikap dan amalan pesakit yang berisiko sederhana dan personel kesihatan di peringkat primer berkenaan dengan saringan kanser kolorektal di Malaysia Barat. Ia merupakan kajian keratas rentas dan melibatkan 44 klinik kesihatan. Sebanyak 1905 pesakit yang berisiko sederhana dan 116 personel kesihatan telah menyertai kajian ini.

Secara umumnya kefahaman mereka tentang saringan kanser kolorektal ini adalah rendah. Hanya 7 % pesakit tahu apa itu FOBT (pemeriksaan najis darah) dan kolonoskopi dan hanya 3 % sahaja pesakit mempunyai sikap yang baik terhadap saringan ini. Lebih malang lagi hanya 0.7 peratus sahaja pesakit yang sepatutnya menjalani ujian ini telah melakukannya. Bagi personel kesihatan pula kadar pengetahuan mereka berkenaan saringan kanser ini memuaskan tetapi jumlah mereka yang mempunyai sikap baik mereka terhadap saringan hanyalah 1.7 % sahaja. Hanya 20 % dalam kalangan mereka mengaku bahawa mereka melakukan ujian saringan ini terhadap pesakit mereka.

F. SUMMARY OF RESEARCH FINDINGS

Ringkasan dapatan Projek Penyelidikan

Generally the understanding about colorectal cancer screening is very low among moderate risk patient. Only 7 % of them know about FOBT and colonoscopy and only 3 % of them had good attitude score. We also found that only 0.7 % of patient who should undergone screening had it done. For primary health care providers, despite having reasonable knowledge on colorectal cancer screening, their attitude score is very low . Only 1.7 % of them had good attitude score. Only 20 % of them are performing some form of colorectal cancer screening in their practice.

G. COMPREHENSIVE TECHNICAL REPORT

Laporan Teknikal Lengkap

Applicants are required to prepare a comprehensive technical report explaining the project. (This report must be attached separately)

Sila sediakan laporan teknikal lengkap yang menerangkan keseluruhan projek ini. [Laporan ini mesti dikepilkan]

List the key words that reflect our research:

Senaraikan kata kunci yang mencerminkan penyelidikan anda:

English	Bahasa Malaysia
Colorectal cancer	Kanser kolorektal
screening	saringan
Moderate risk patient	Pesakit berisiko sederhana
Primary health care personnel	Pekerja kesihatan primer

I. BUDGET / BAJET

Total Approved Budget : RM 97 738. 00
Total Additional Budget : RM 13 000. 00
Grand Total of Approved Budget : RM 110, 738.00

Yearly Budget Distributed

Year 1 : RM 48 000.00
Year 2 : RM 49 738.00
Year 3 :

Additional Budget Approved

Year 1 : RM
Year 2 : RM
Year 3 : RM RM 13 000.00

Total Expenditure : RM 110.217.20
Balance : RM 520.80

- Please attach final account statement from Treasury


Signature of Researcher
Tandatangan Penyelidik

Date 12/6/2013
Tarikh

Dr. Hamy Mohd Yusoff
(No. Pendaftaran Penuh MPM 32078)
Pensyarah Perubatan
Jabatan Perubatan Keluarga
Hospital Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan

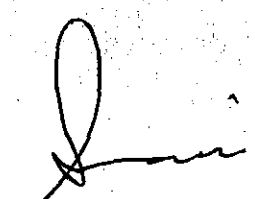
COMMENTS OF PTJ'S RESEARCH COMMITTEE

KOMEN JAWATANKUASA PENYELIDIKAN PERINGKAT PTJ

General Comments:

Ulasan Umum:

Buku dibungkus




PROFESOR (DR) NIK SORIANI YAACOB
Chairman Of Research committee
School Of Medical Sciences
Health Campus
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan

Signature and Stamp of Chairperson of PTJ's Evaluation Committee
Tandatangan dan Cop Pengerusi Jawatankuasa Penilaian PTJ

Date : *18/7/13*
Tarikh :

Signature and Stamp of Dean/ Director of PTJ
Tandatangan dan Cop Dekan/ Pengarah PTJ



PROFESOR (DR) ARMAD SUKARI HALIM
Dekan
Pusat Pengajian Sains Perubatan
Kampus Kesihatan
Universiti Sains Malaysia
16150 Kubang Kerian, Kelantan.

Date : *18/7/13*
Tarikh :

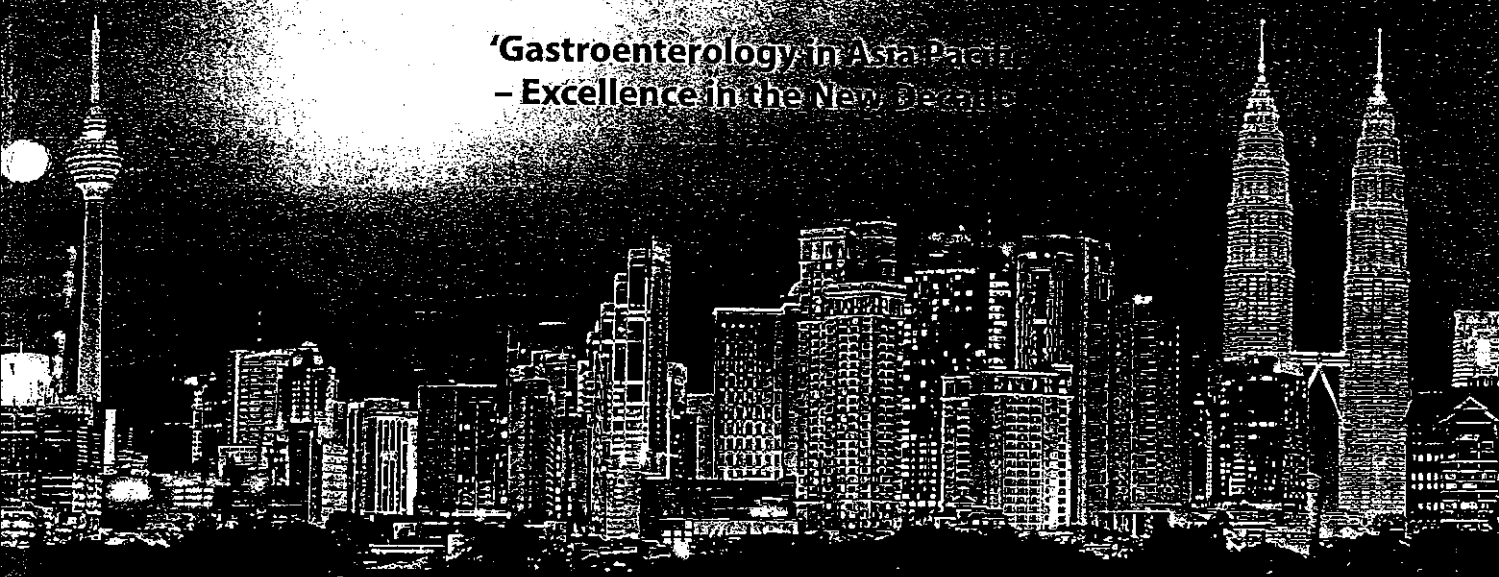
Volume 25 Supplement 2 September 2010
ISSN: 0815-9319
www.wileyonlinelibrary.com/journal/jgh

Asia Pacific Digestive Week
19-22 September 2010
Gastroenterology Convention
Centre Jakarta

Journal of

Gastroenterology and Hepatology

'Gastroenterology in Asia Pacific
– Excellence in the New Decade'



WILEY-
BLACKWELL



JGHF

Journal of Gastroenterology
and Hepatology Foundation

Methods This prospective study enrolled 148 consecutive patients with cirrhosis and ascites admitted between May 2008 to March 2010. After excluding patients who were immunosuppressed, had history of prior antibiotic use, had previous episodes of SBP and had other confounding etiological factors for ascites, sixty seven patients were included in the study. SBP was defined as ascitic fluid PMN count >250 /cu.mm. The odds ratio for development of SBP associated with MELD score and grouped MELD score was calculated. (<15 , $16-24$, >25). Variables like albumin, INR, creatinine, creatinine clearance and ascitic fluid analysis measurements were compared in the two groups.

Results The prevalence of SBP was 20.9%. The mean MELD score in SBP group was 23.14 9.87 and in the non SBP group was 18.46 7.43. The odds ratio for development of SBP was 1.23 for each point rise in MELD score. ($p = 0.0032$). Patients with MELD > 25 had an odds ratio of 9.52 ($p = 0.001$) for SBP as compared to patients with MELD < 15 . Ascitic fluid PMN count and creatinine clearance were significantly altered in the SBP group.

Conclusions Increasing MELD score is independently associated with a greater risk of SBP. For every point increase in MELD score, the risk of developing SBP increases by 12.3%. Prophylactic antibiotics should be considered in patients with MELD score > 25 .

176

Population-based epidemiology of primary sclerosing cholangitis in Canterbury, New Zealand

JH NGU,^{1,2} A WRIGHT,² RB GEARRY,^{1,2} BA CHAPMAN,¹ MJ BURT,¹ ML BARCLAY,^{1,2} CAM STEDMAN^{1,2}

¹Department of Gastroenterology, Christchurch Hospital, New Zealand, ²University of Otago, Christchurch, New Zealand

Background/Aim The precise etiology of primary sclerosing cholangitis (PSC) remains unknown and epidemiological data are very limited worldwide. Our aim was to perform a population based epidemiological study of PSC in Canterbury, New Zealand.

Method Multiple case finding methods were employed. All public and private, adult and pediatric outpatient clinics, hospital discharge summaries, radiology and pathology reports were searched to identify all cases of PSC in the region. Cases were included if they have ERCP, MRCP or liver biopsy proven PSC.

Results 79 cases of PSC were identified. Incidence in 2008 was 1.4/100,000 (95% CI 0.4–2.5/100,000). Point prevalence on 31 December 2008 was 10.3/100,000 (95% CI 7.5–13.2/100,000). Age-standardized (WHO standard population) incidence and prevalence were 1.6 and 10.3 per 100,000 respectively. Mean and median ages at diagnosis were 51 and 50 years respectively. Gender-specific prevalence confirmed a male predominance. 76% have co-existing inflammatory bowel disease (IBD) while 8% overlap with autoimmune hepatitis. 22% developed malignancy, of which cholangiocarcinoma and colorectal cancer make up 50% and 20% respectively.

Conclusion This is the first population based epidemiological study of PSC in Asia Pacific region to be reported. It shows that PSC is most prevalent in elderly male with a strong association with IBD. Nearly a quarter of this cohort develops malignancy.

177

Primary biliary cirrhosis in Canterbury, New Zealand: a population-based study

JH NGU,^{1,2} A WRIGHT,² RB GEARRY,^{1,2} BA CHAPMAN,¹ MJ BURT,¹ ML BARCLAY,^{1,2} CAM STEDMAN^{1,2}

¹Department of Gastroenterology, Christchurch Hospital, New Zealand, ²University of Otago, Christchurch, New Zealand

Background/Aim Primary biliary cirrhosis (PBC) is a cholestatic liver disease of unknown aetiology. Its epidemiology has not been studied systematically in New Zealand. Our aim was to perform a population based epidemiological study of PBC in Canterbury, New Zealand.

Method To identify all known PBC cases in this region, computer records of all public and private, adult and pediatric outpatient clinics and hospital discharge summaries were searched. Cases were included if at least two of the following criteria were fulfilled: positive antimitochondrial antibodies, elevated alkaline phosphatase for greater than 6 months, and compatible liver histology.

Results 70 cases of PBC were identified. Incidence of PBC in 2007 was 1.3/100,000 (95% CI 0.3–2.2/100,000). Point prevalence on 30 November 2007 was 9.3/100,000 (95% CI 6.9–12.1/100,000). There is a female predominance (93%). AMA, ANA and SMA were positive in 84%, 27% and 22% respectively. Immunoglobulin M and G were elevated in 78% and 53% respectively. 17% overlap with autoimmune hepatitis. Age at diagnosis peaked at the seventh decade with mean age of 61.

Conclusion This is the first population based epidemiology study of PBC in New Zealand to be reported. The observed rates almost doubled those reported in Victoria, Australia which has similar population composition. This suggests an environmental factor(s) contributes to the development of PBC.

264

Knowledge and attitude on colorectal cancer screening among moderate risk patients in West Malaysia

MY HARMY,¹ D NORWATI,¹ MN NORHAYATI,¹ AR AMRY²

¹Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia, ²Department of Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Introduction Colorectal cancer is the commonest cancer among men and the third among women in Malaysia. However, almost 80% sought treatment for cancer only when they were already in late stage due to lack of awareness. Hence, the objectives of this study were to determine the knowledge and attitude of colorectal cancer screening among moderate risk patients.

Methods A cross-sectional study was conducted between August 2009 and April 2010 in 44 selected health clinics with Family Medicine Specialist in West Malaysia using stratified multistage random sampling. A validated Malay version of the questionnaire with Cronbach's alpha of 0.65 to 0.82 was used. Data was entered using SPSS 12.0 and analysed using STATA 8.0.

Results A total of 1905 (93.8%) patients responded. The mean (SD) knowledge and attitude score among moderate risk patients were 69.5% (6.1) and 66.5% (7.1), whereas, the percentage of good knowledge and attitude was 4.1% and 3.3% respectively. Less than 1% had undergone

P11: A COMPARISON ON MEN'S HEALTH KNOWLEDGE AMONG FINAL YEAR MEDICAL STUDENTS IN UNIVERSITI SAINS MALAYSIA (USM) AND MONASH UNIVERSITY (MU), MELBOURNE, AUSTRALIA

Shaiful Bahari I¹, Rosediani M¹, Nik Hazlina NH¹, Shamsunarnie MZ¹, Leon P²
¹Universiti Sains Malaysia, Kota Bharu, Kelantan, ² Monash University, Melbourne, Australia

Objective: To determine the knowledge of the final year medical students in USM and MU on Men's Health.
Methodology: A cross-sectional study was conducted on 199 final year medical students from Universiti Sains Malaysia (USM), Kelantan, Malaysia and Monash University, Melbourne, Australia (75 students from USM and 124 students from MU) using self-administered questionnaire on the topics related to male sexual and reproductive health.
Results: The response rates were 44% for USM and 82.6% for MU. Out of 52 items, 17 items were significantly had higher percentage in answering correctly ($p < 0.005$) by MU students compared to USM students. Meanwhile, USM students had 10 items which had significantly higher percentage in answering correctly ($p < 0.005$) as compared to MU students. There was a significant difference in two domains which were physiology of penile erection and male sexual dysfunction in both groups ($p < 0.005$). The highest score for men's health knowledge was 90.3% and the lowest score was 38.4%. Approximately 46.7% of USM and 66.1% of MU students had significantly good knowledge score (marks $\geq 75\%$ of the total score) ($p < 0.005$).
Conclusion: There was still a gap in knowledge on men's health among the final year medical students in both universities that needs to be addressed and implemented at par with other disciplines in undergraduate teaching.

P12: A STUDY ON KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS COLORECTAL CANCER AND SCREENING AMONG MODERATE RISK MALAY POPULATION ATTENDING SELISING HEALTH CLINIC

Harmy MY¹, Norwati D¹, Norhayati MN¹, Idora I¹
¹Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia

Objectives: To determine the level of knowledge, attitude and practice on colorectal cancer and screening among moderate risk Malay population and to determine the relationship between knowledge and attitude, and knowledge and practice.
Methodology: It was a cross sectional study conducted from September 2009 to December 2009 at Selising health clinic. The study used a self-administered questionnaire which involved 262 participants. The questionnaire consisted 3 parts, which dealt with knowledge, attitude and practice towards colorectal cancer and screening.
Results: The result from this study showed only 6.1% of respondents has good knowledge. 25.2% and 23.7% knows regarding fecal occult blood test and colonoscopy respectively for colorectal cancer screening. Respondents who have good attitude are 31.7%. They consider fecal occult blood test as troublesome (34.8%) and colonoscopy as inconvenient (69.4%). Only 0.4% of respondents has a good practice towards colorectal cancer prevention. Out of 262 only 2 had undergone colorectal cancer screening. They gave the reason for not being advices (83.1%) and do not know how to do the screening (72.1%) for not undergone the screening.
Conclusion: Knowledge towards colorectal cancer is one of the important measures to improved patients attitude towards colorectal cancer screening. The awareness is not only important for patients but also for medical practitioner.

KNOWLEDGE AND ATTITUDE OF COLORECTAL CANCER SCREENING AMONG MODERATE-RISK PATIENTS IN EASTERN REGION, WEST MALAYSIA

HARMY MY¹, NORWATI D¹, NORHAYATI MN^{1*}, AMRY AR²

¹Department of Family Medicine and ²Department of Internal Medicine, School of Medical Sciences, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia

Corresponding Author

Dr Norhayati Mohd Noor

Department of Family Medicine, School of Medical Sciences, Universiti Sains Malaysia, Health Campus, 16150 Kubang Kerian, Kelantan, Malaysia

Tel: +6013-9388416; Email: hayati@kk.usm.my

ABSTRACT

Colorectal cancer is the commonest cancer among males and the third commonest cancer among women in Malaysia. However, almost 80% sought treatment for cancer only when they were already in late stage due to lack of awareness. Hence, the objective of this study was to determine the knowledge and attitude of colorectal cancer screening among moderate risk patients. A cross-sectional study was conducted between August 2009 until April 2010 in 11 randomly selected health clinics with Family Medicine Specialist in Kelantan, Terengganu and Pahang. A validated Malay version of the questionnaire with the Cronbach' alpha of 0.65 to 0.82 was used. Data was entered using SPSS 12.0 and analysed using STATA 8.0. A total of 383 (73.9%) patients responded. The mean (SD) knowledge and attitude score among moderate risk patients were 67.7 (6.70) and 63.7 (7.30), whereas, the percentage of good knowledge and attitude was 2.1% and 1.6% respectively. Less than 1% had undergone colorectal cancer screening and the main reasons for not undergoing screening were not bothered, busy and embarrassment. Majority of patients who had moderate risk for colorectal cancer had extremely low knowledge and attitude towards colorectal cancer screening. As a result, majority did not undergo any form of colorectal cancer screening.

(Note: Figures and tables appear at the end of this article)

Keywords: colorectal cancer screening, knowledge, attitude

INTRODUCTION

Colorectal cancer is increasing trend and is expected to become the first cause of death in Asia [1]. In Peninsular Malaysia, colorectal cancer is the first among male and the second most common among female after breast cancer. In 2006, there were 2866 cases of colorectal cancer which represents 13.2% of all cases registered with National Cancer Registry. The incidence was highest among Chinese with age-standardized rates was 21.4/100 000 population and were lower in Indian and Malay where the age-standardized rates were 11.3/100 000 and 9.5/100 000 respectively [2].

RESEARCH COMMUNICATION

Knowledge and Attitude of Colorectal Cancer Screening Among Moderate Risk Patients in West Malaysia

MY Harny¹, D Norwati¹, Norhayati Mohd Noor^{1*}, AR Amry²

Abstract

Colorectal cancer is the commonest cancer among males and the third commonest cancer among women in Malaysia. However, almost 80% of patients sought treatment for cancer only when they were already in late stage due to lack of awareness. Hence, the objectives of this study were to determine the knowledge and attitude of colorectal cancer screening among moderate risk patients. A cross-sectional study was conducted between August 2009 till April 2010 in 44 health clinics with Family Medicine Specialists in West Malaysia. Stratified multistage random sampling was applied and a validated Malay version of the questionnaire with the Cronbach' alpha of 0.65 to 0.82 was used. Data were entered using SPSS 12.0 and analysed with STATA 8.0. A total of 1,905 (93.8%) patients responded. The mean (SD) knowledge and attitude score among moderate risk patients were 69.5 (6.11)% and 66.5 (7.07)%, whereas, the percentages for good knowledge and attitude were 4.1% and 3.3% respectively. Less than 1% had undergone colorectal cancer screening and the main reasons were not bothered, busy and embarrassment. The majority of patients who had moderate risk for colorectal cancer had extremely low knowledge and attitude towards colorectal cancer screening. As a result, the majority did not undergo any form of colorectal cancer screening.

Keywords: Colorectal cancer screening - knowledge - attitude - Malaysia

Asian Pacific J Cancer Prev, 12, 1957-1960

Introduction

Colorectal cancer is increasing trend and is expected to become the first cause of death in Asia (Pignone et al., 2002). In Peninsular Malaysia, colorectal cancer is the first among male and the second most common among female after breast cancer. In 2006, there were 2866 cases of colorectal cancer which represents 13.2% of all cases registered with National Cancer Registry. The incidence was highest among Chinese with age-standardized rates was 21.4/100000 population and were lower in Indian and Malay where the age-standardized rate were 11.3/100000 and 9.5/100000 respectively (Ministry of Health, 2006).

There is a strong evidence that population screening and early treatment reduces colorectal cancer mortality (Pignone, 2002). Reports from the American Cancer Society, where colorectal cancer screening program have been implemented, showed that the incidence has decreased in two straight years and this has been largely attributed to the remarkable success of screening programs for colonic polyps and colorectal cancer in the United State. The screening increased from 38% in year 2000 to 53% in year 2008 (Ahmedin et al., 2008). A recent meta-analysis of studies evaluating screening using fecal occult blood tests (FOBT) estimated the mortality reduction to be 15% to 33% (Hewitson et al., 2011). The UK Flexible Sigmoidoscopy Trial studied the efficacy

of a single Flexible Sigmoidoscopy screening offered to asymptomatic individuals aged 55 to 64 years showed 43% reduction of mortality and confers a substantial and long lasting benefit (Atkin et al., 2010).

The population age of more than 50 years is the only risk factor considered to be of "average risk," whereas those with other risk factors such as personal or family history of colorectal cancer, adenomas or inflammatory bowel disease are considered to be at "high risk". Approximately 70 to 80% of CRC arises among population at the average risk (U.S. Preventive Services Task Force, 2008). The US Preventive Services Task Force recommends colon cancer screening for all persons at average risk who are older than 50 years with any of the following tests: fecal occult blood test (FOBT) annually, flexible sigmoidoscopy every 5 years, double-contrast barium enema (DCBE) every 5 years, flexible sigmoidoscopy every 5 years plus FOBT annually, or colonoscopy every 10 years (Pignone, 2002). Despite similar guidelines from the American Gastroenterological Association and the American Cancer Society, the rates of screening in the population at average risk remain low (Ko et al., 2002).

Many studies showed that the obstacles for implementing colorectal cancer screening programme were limited by knowledge on colorectal cancer, inconvenient and embarrassing nature of the test and lack

¹Department of Family Medicine, ²Department of Medicine, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia *For correspondence: hayati@kk.usm.my