Colorectal cancer screening- where are we?

3rd Aug 2017, Penang

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Hospital Sultanah Bahiyah
Alor Star
Kedah
Outline

• Colon cancer and screening

• Where are we now
  Journey of CRC screening
  CPG
  How much have we achieved
  Issues

• conclusions
Cancer Worldwide

Estimated number of incident cases, both sexes, worldwide (top 20 cancer sites) in 2012

Data source: GLOBOCAN 2012
Graph production: Cancer Today  [http://gco.iarc.fr/today]
© International Agency for Research on Cancer 2016
According to the 3rd report of the National Cancer Registry, the most frequent cancer was:

- Breast cancer: 18.0%
- Large bowel cancer: 11.9%
- Lung cancer: 7.4%
NCR report: Variation by gender

**MALES**

- Large bowel cancer 14.5%
- Cancers of the lung 12.2%
- Nasopharynx 7.8%

**FEMALES**

- Breast cancer 31.3%
- Cancers of cervix uteri 10.6%
- Large bowel cancer 9.9%
KEKERAPAN BERLAKU

Kanser Kolorektal
kanser UTAMA di Malaysia

LELAKI lebih kerap berbanding wanita

50 TAHUN ke atas tanpa mengira jantina

Sumber: Malaysian National Cancer Registry Report 2007-2011
KEKERAPAN BERLAKU

Age-specific incidence rate by sex, Malaysia, 2007-2011

50 TAHUN ke atas tanpa mengira jantina

Sumber: Malaysian National Cancer Registry Report 2007-2011
Adenoma to Carcinoma Pathway

Normal → Adenoma → Cancer
Colonoscopy

• The National Polyp Study observed a 76-90% reduction in CRC incidence after polypectomy

• RCT’s in progress

Winawer et al, NEJM 1993
WHAT IS SCREENING?

Screening is done to diagnose a disease before symptoms occur, when timely treatment can avert disability and mortality.
Colorectal cancer screening

Colorectal cancer is often found after symptoms appear, most people with early colon or rectal cancer have no symptoms of the disease. Symptoms usually appear only with more advanced disease. This is why getting the recommended *(Colorectal Cancer) screening tests* before any symptoms develop is so important.
Objectives of Colorectal Cancer Screening

• **Prevent** cancers by detection and resection of adenomatous polyps

• **Detection** of surgically curable colorectal cancers (Stages 1, 2)
KENAPA PERLU SARINGAN KANSER KOLOREKITAL?

Saringan awal dapat membantu MENGESAN polyp pra-kanser

Polyp yang dibuang awal dapat MENGHALANG proses perkembangan kanser

Kajian telah membuktikan bahawa pengesanan awal kanser kolorektal mampu MENURUNKAN KADAR KEMATIAN akibat penyakit ini sebanyak 10% - 75%

MENCEGAH lebih baik dari merawat

Sumber:
Screening for Colorectal Cancer, Ann Intern Med
Reducing mortality from colorectal cancer by screening for fecal occult blood
Randomised controlled trial of faecal-occult-blood screening for colorectal cancer
The Good News

Incidence

Mortality

Men
Women

Men
Women

Year of diagnosis/death

Rate per 100,000 people
CRC Time Trends

Colorectal Cancer Evolution in Malaysia

1998
1st Consensus of Colorectal Cancer screening by MSGH
→ Screening ONLY people at risk

2014
Pilot Project KKM
→ Screening at LARGER Scale - OPPORTUNISTIC Screening @ Health Clinics

2016
Development of new CPG by CRC & MaHTAS

2017/2018
→ POPULATION-BASED Screening

2020/2030
Colorectal Cancer Screening Methods - Timelines -

- **< 2000**
  - gFOBT
  - Colonoscopy
  - Sigmoidoscopy
  - Barium Enema

- **2010**
  - iFOBT
  - Colonoscopy

- **2014**
  - iFOBT
  - Colonoscopy
  - CT Colonography

- **>> 2020**
  - DNA Test
  - Precision Medicine
KAEDAH SARINGAN

GOLONGAN BERISIKO

GOLONGAN KURANG BERISIKO

COLONOSCOPY

iFOBT
Screening Strategies

Two-Stage Screening

FOBT (fecal occult blood test)

Colonoscopy
Colonoscopy

• Scarry and embarassing !!

• Invasive and painful

• Complication eg perforation

• Side effect of the bowel preparation

• Subjects with co morbidities
Operator Factors
Total Number of Screened Patients by States 2016

Total: 30128
Result of the screening – 2016
(no of clinics : 474)

<table>
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<tr>
<th></th>
<th>n</th>
<th>%</th>
<th>Denominator</th>
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<td>no. screened</td>
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<td></td>
<td></td>
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<tr>
<td>Positive iFOBT</td>
<td>2706</td>
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<td>2402</td>
<td>88.8</td>
<td>No. iFOBT positive</td>
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<tr>
<td>Nor referred/Refused referral</td>
<td>304</td>
<td>11.2</td>
<td>No. iFOBT positive</td>
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<tr>
<td>Underwent scope</td>
<td>1174</td>
<td>48.9</td>
<td>No. cases referred</td>
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<tr>
<td>Result : Cancer</td>
<td>44</td>
<td>3.74</td>
<td>No. underwent scope</td>
</tr>
<tr>
<td>Result : colonic polyp</td>
<td>126</td>
<td>10.7</td>
<td>No. underwent scope</td>
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<td>Detection rate among screened</td>
<td></td>
<td>0.14</td>
<td>No. screened</td>
</tr>
</tbody>
</table>
Results of The Screening

Total number of screened patients: 30128
IFOBT positive: 2706
Referred for scope: 2402
Underwent scope: 1174

Colonic Polyp 74%
Patients’ Perception and Perceived Barriers towards Colorectal Cancer Screening: A Qualitative Study

Project by:
Dr. Tan Wei Leong, Dr. Mohd Azri Mohd Suan
Datuk Dr. Muhammad Radzi Abu Hassan
Preliminary Results

Barriers of not undergoing colonoscopy:

• Lacked of informative and thorough explanation on colorectal cancer and colonoscopy.

• Patients did not understand the importance of colonoscopy.

• Patients claimed that they are pretty healthy and asymptomatic of any disease.

• No proper follow up from the health clinics.
Preliminary Results

Motivating factors of undergoing colonoscopy

• Fear of colorectal cancer.

• Previous experience from friends who were diagnosed with colorectal cancer.
Opportunistic Screening to Population-based Screening

ISSUES
Are we ready?
Downstream effect
MANAGEMENT OF COLORECTAL CARCINOMA
Table 4: Risk Categories for Family History with Colorectal Carcinoma

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<tr>
<th>Category</th>
<th>Description</th>
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<tr>
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<td>No family history and age &gt;50 years</td>
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<tr>
<td>Average risk</td>
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<tr>
<td>Category 2</td>
<td>Family history of CRC either:</td>
</tr>
<tr>
<td>Moderate risk</td>
<td>&gt;1 FDR</td>
</tr>
<tr>
<td></td>
<td>1 FDR and &gt;1 SDR</td>
</tr>
<tr>
<td></td>
<td>&gt;3 and one of them must be FDR</td>
</tr>
<tr>
<td>Category 3</td>
<td>Family history of:</td>
</tr>
<tr>
<td>High risk</td>
<td>CRC &lt;50 years</td>
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<tr>
<td></td>
<td>FAP</td>
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<tr>
<td></td>
<td>HNPCC (Lynch Syndrome)</td>
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<tr>
<td></td>
<td>Peutz-Jegher Syndrome</td>
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<tr>
<td></td>
<td>Juvenile Polyposis</td>
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<tr>
<td></td>
<td>MUTYH Associated Polyposis</td>
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</table>
ALGORITHM A: SCREENING FOR COLORECTAL CARCINOMA

ASSESS PATIENT FOR SYMPTOMS OF CRC

NO

PRESENCE OF SYMPTOM

YES

STRATIFY RISK FAMILY HISTORY

CATEGORY 1 - AVERAGE RISK *

CATEGORY 2 - MODERATE RISK *

CATEGORY 3 - HIGH RISK *

+VE

Immunofaecal occult blood testing (IFOBT)

REFER FOR COLONOSCOPY

-VE

Repeat IFOBT every 1 to 2 years
Malaysia’s Colorectal Cancer Clinical Practice Guideline – Screening for CRC

WHAT SCREENING TOOLS

Average Risk
- ✓ Stool base test
- ✓ Sigmoidoscopy
- ✓ Colonoscopy
- ✓ CT colonoscopy
- ✓ Capsule endoscopy

Increase Risk and High Risk
- ✓ Colonoscopy
Virtual MR Colonoscopy

MR Colonography

- Faecal tagging with dilute Barium
- No bowel prep
- IV Contrast
- Accuracy = CTC

Lauenstein et al. AJR 2001
PillCam™ COLON Capsule

• New PillCam design
• 2-sided video cameras; 4 frames per second (fps), 2 fps per camera
• 8–10 hours operating time
PillCam™ Colon

ICV  Ascending  Transverse  Descending  Rectum

Investigational Device. Not yet cleared for marketing.
Blood or Stool..or Imaging?

Figure 4. Molecular marker release from colorectal neoplasms into target media. This conceptual model shows proportional differences (illustrated by arrow sizes) expected in rates of marker release into the bloodstream via the mechanism of vascular invasion and into the stool via the mechanism of exfoliation during progressive phases of tumorigenesis. Marker release into the bloodstream from precursor lesions is negligible but increases progressively with advancing stages of cancer. In contrast, marker release by exfoliation into stool occurs at comparable rates from large precancers and all stages of cancer.

sDNA - Sample Collection

Collection bucket inserted into bracket and installed under toilet seat

Patient supplies whole stool sample; no diet or medication restrictions

Patient seals sample in outer container and freezer pack

Patient seals container and ships back to designated lab (all packing materials and labels supplied)
Precision Medicine: toward tailored approaches to health and disease

Population

- Diseases affect individuals differently
- People have different responses to same treatment
- Some people get conditions such as diabetes or heart disease despite a healthy lifestyle

Individual characteristics and circumstances

Stratified population

More precise
- Prevention
- Diagnoses
- Treatments
Malaysia’s Colorectal Cancer Clinical Practice Guideline – Screening for CRC

Barriers to participation in bowel screening

- Fear and denial around the test outcome
- Individual perceived low risk or don’t want to know result
- Gender - males less likely to take part in screening
- Misconception that the test is not applicable if no apparent symptoms of bowel cancer
- Lower uptake among ethnic minority groups
- Concerns around the practicalities and cleanliness of the test
- Low health literacy and numeracy
- It’s important to design activity to address these barriers for screening in your area, if relevant.
CRC Screening in Malaysia: How to Proceed?

- Second commonest cancer, commonest among elderly
- Aging of population and rising incidence of CRC
- Health authority support for population-based screening programs
- National screening guidelines
- Lack of awareness/education
- Team work and champions
- Identify high risk individuals for targeted screening
Education and Awareness

- Among health care provider
- Among public
Creating awarenesses

• MySihat

• Social media

• Promoting the screening at all the events

• Beyond KKM
Where are we now?

We are on the right track...

LONG WAY TO GO!!
Conclusion

- CRC screening decreases incidence and mortality

- Journey with lots of challenges and issues

- Team effort with champions to overcome and succeed

- Doable with living proof example in many countries

- The best strategy in cancer prevention & management
‘The barrier to reducing the number of death from colon cancer is not lack of scientific data but a lack of organisational, financial and societal commitment’

Daniel K Podoslsky MD
NEJM 7/02/00
Thank you
CRC Screening Whatsapp Group

Communications were made easy through ‘Whatsapp Group’

All positive cases were referred to the hospital where appointment was made through this group
Conclusion

- CRC screening decreases CRC mortality
- Optimal strategy & modality still uncertain
- Choose your endoscopist wisely

For more information on the different ways you can be tested, call 1.800.227.2345 or visit www.cancer.org/NYNU.
Why the Variance?

Make the Best of a Sticky Situation
Get the kit. Take the test.
ColonCancerCheck.ca
Cancer Facts and Figures in Malaysia

- 37,400 new cancer cases in 2012
- 21,700 cancer deaths in 2012
- Third cause of death in MOH hospitals in 2015: 13.56%
- Second cause of death in private hospitals in 2015: 25.58%
- 103,507 new cases from 2007-2011: (54.8% women, 45.2% men)
- Five most common cancers among men: colon, lung, nasopharyngeal, lymphoma and prostate
- Five most common cancers among women: breast, colon, cervical, ovarian and lung
- Government spent RM240 million on oncology drugs in 2015

Sources: Health Ministry and World Health Organization
Graphics: themalaymailonline.com
Other Considerations

If you can't afford a doctor, go to an airport - you'll get a free x-ray and a breast exam, and if you mention Al Qaeda, you'll get a free colonoscopy.
“Incidence and mortality rates of colorectal cancer in Malaysia”

- Muhammad Radzi Abu Hassan, Ibtisam Ismail, Mohd Azri Mohd Suan, Faizah Ahmad, Wan Khamizar Wan Khazim, Zabedah Othman, Rosaida Mat Said, Wei Leong Tan, Siti Rahmah @ Noor Syahireen Mohammed, Shahrul Aiman Soelar, Nik Raihan Nik Mustapha

- Epidemiology and Health, Volume: 38, Article ID: e2016007, 5 pages
  http://dx.doi.org/10.4178/epih.e2016007
“Colorectal cancer in Malaysia: Its burden and implications for a multiethnic country”

- Sajesh K. Veettil, Kean Ghee Lim, Nathorn Chaiyakunapruk, Siew Mooi Ching, Muhammad Radzi Abu Hassan

- Asian Journal of Surgery (2016) xx, 1e9
“Incidence and mortality rates of colorectal cancer in Malaysia”

- Muhammad Radzi Abu Hassan, Ibtisam Ismail, Mohd Azri Mohd Suan, Faizah Ahmad, Wan Khamizar Wan Khazim, Zabedah Othman, Rosaida Mat Said, Wei Leong Tan, Siti Rahmah @ Noor Syahireen Mohammed, Shahrul Aiman Soelar, Nik Raihan Nik Mustapha

- Epidemiology and Health, Volume: 38, Article ID: e2016007, 5 pages http://dx.doi.org/10.4178/epih.e2016007
"Survival Analysis and Prognostic Factors for Colorectal Cancer Patients in Malaysia"

- Muhammad Radzi Abu Hassan, Mohd Azri Mohd Suan, Shahrul Aiman Soelar, Noor Syahireen Mohammed, Ibtisam Ismail, Faizah Ahmad
- Asian Pac J Cancer Prev, 17 (7), 3575-3581

Abstract

Background: Cancer survival analysis is an essential indicator for effective early detection and improvement in cancer treatment. This study was undertaken to document colorectal cancer survival and associated prognostic factors in Malaysia. Materials and Methods: All data were retrieved from the National Cancer Registry—Colorectal Cancer. Only cases with confirmed diagnosis through histology between the years 2008 and 2009 were included. Retrieved data include socio-demographic information, pathological features and treatment received. Survival curves were plotted using the Kaplan-Meier method. Univariate analysis of all variables was then made using the Log-rank test. All significant factors that influenced survival of patients were further analysed in a multivariate analysis using Cox regression. Results: Total of 1,234 patients were included in the study. The overall 3- and 5-year survival rates were 59.1% and 48.7%, respectively. Patients with localized tumours had better prognosis compared to those with advanced stage cancer. In univariate analysis, staging at diagnosis (p<0.001), primary tumour size (p=0.011), involvement of lymph nodes (p=0.001) and treatment modality (p=0.001) were found to be predictors of survival. None of the socio-demographic characteristics were found to exert any influence. In Cox regression analysis, staging at diagnosis (p=0.001), primary tumour size (p=0.001), involvement of lymph nodes (p=0.001) and treatment modality (p=0.001) were determined as independent prognostic factors for survival after adjusting for age, gender and ethnicity. Conclusions: The overall survival rate for colorectal cancer patients in Malaysia is similar to those in other Asian countries, with staging at diagnosis, primary tumour size, involvement of lymph node and treatment modality having significant effects. More efforts are needed to improve national survival rates in future.

Keywords: Colorectal cancer - Malaysia - survival - prognosis - factors

Introduction

Colorectal cancer remains as significant cause of morbidity and mortality worldwide. It is the third most common cancer worldwide, behind lung and prostate cancer in men and only second to breast cancer in women. Colorectal cancer becomes fourth highest in cancer mortality when states are combined (Ferlay et al., 2015; American Cancer Society, 2015). Over the last few decades, many advancements were made in managing colorectal cancer. This includes the availability of a useful screening tool, progression in surgical technique, advancement in treatment modality and many more (Carter et al., 2006; Haertle, 2008; Chadha et al., 2010). As a result, patients can have a better prognosis and improved quality of life after diagnosis with colorectal cancer. Thus, the cancer survival analysis is an essential indicator for an effective early detection and improvement in cancer treatment.

Several local studies had analyzed data on colorectal cancer survival, but the studied population was confined to only a few hospitals. For instance, Rashid et al. (2009) in their study of 137 colorectal cancer patients at University Kebangsaan Malaysia Medical Centre confirmed that the overall survival rate for five-year follow-up was 39.4%. In another study by Kong et al. (2010) that involved a comparison of colorectal cancer survival rate between University Malaya Medical Center (UMC) and Sabah General Hospital (SGH), it was found that SGH had lower five-year survival rate compared to UMC (43.7% vs. 65%). In the light of document the Malaysian survival rate and associated prognostic factors, the authors carry out analyses utilizing the data from the National Cancer Registry—Colorectal Cancer.

Materials and Methods

This study was conducted using secondary data from the Malaysian National Cancer Patient Registry—Colorectal Cancer. This registry was established in October 2007.
Colorectal Cancer Awareness and Screening Preference: A Survey during the Malaysian World Digestive Day Campaign

Mohd Azri Mohd Suan, Noor Syahireen Mohammed, Muhammad Radzi Abu Hassan


Introduction

Colorectal cancer is common in Malaysia, both in men and women. In retrospect, incidence of colorectal cancers in Malaysia has been reported in the international journal since 1985 (Ling, 2001). According to the Malaysian National Cancer Registry, in year 2003, colorectal cancer is the top third most frequently reported cancer in both males and females respectively. In West Malaysia (Ling et al., 2006). More recently, report by National Cancer Registry-Colorectal Cancer stated that from year 2006 to 2013, overall incidence rate for colorectal cancer was 213 cases per 100,000 populations in Malaysia (Radzi et al., 2014). More worrying was the fact that the overall mortality rate was 9.5 cases per 100,000 populations during the same period of time with men having higher mortality rate than women.

Despite the increasing incidence of colorectal cancer, awareness on colorectal cancer, including its symptoms, risk factors and screening method, remains low in Malaysian populations. Rashedi et al. (2011) conducted a survey on knowledge about colorectal cancer among patients presented with rectal bleeding in a Malaysian university hospital. They found that majority of surveyed patients were unable to identify symptoms of colorectal cancer except for rectal bleeding. Knowledge on risk factors for the same cancer was also found to be low. In another study by Al-Nazer and Bohryd (2013), a large number of university students in Malaysia did not know about any specific methods for colorectal cancer screening. Furthermore, a study by Hanny et al. (2012) reported only 7% from nearly 2000 healthy respondents were aware of colorectal cancer screening. Apprehension and embarrassment were found to be the primary reasons for not participating in the screening.

Since there is no population-based screening program available for colorectal cancer in Malaysia, it is unknown as to what extent the Malaysian populations would be receptive to colorectal cancer screening. The information on preferred colorectal cancer screening tools among Malaysian populations needs to be identified if the screening uptake is to be increased. The primary aim of this study is to ascertain the awareness level towards colorectal cancer symptoms, risk factors and its screening among general populations in Malaysia. Secondly, the authors would like to assess the public preference and willingness to pay for colorectal cancer screening.

1Clinical Research Centre, Department of Internal Medicine, Sultanah Aminah Hospital Alior, Skudai, Johor, Malaysia. *For correspondence: a2190@ yahoo.co.uk
Malaysia’s Colorectal Cancer Clinical Practice Guideline – Screening for CRC

**WHAT SCREENING TOOLS**

**Average Risk**
- ✓ Stool base test
- ✓ Sigmoidoscopy
- ✓ Colonoscopy
- ✓ CT colonoscopy
- ✓ Capsule endoscopy

**Increase Risk and High Risk**
- ✓ Colonoscopy
Figure 1. Solitary 16-mm Pedunculated Cecal Polyp in a 55-Year-Old Man at Average Risk for Colorectal Neoplasia.
Panel A shows a schematic map of the air-filled colon generated from the computed tomographic (CT) scan obtained with the patient in the prone position. The green line is the centerline that is automatically generated for virtual navigation; the red dot is a “bookmark” indicating the location of the polyp within the cecum. Panel B, a three-dimensional view from the endoluminal “fly-through” generated from the same CT scan, shows the cecal polyp (P) and the appendiceal orifice (arrow) in the background. This display was used for the primary detection of polyps. Panel C is an axial, two-dimensional CT image obtained with the patient in the prone position; it shows the polyp (arrow) on a stalk within the air-filled cecum. The residual luminal fluid is opacified by oral contrast agent, which enables the software program to “cleanse” the threedimensional image. This two-dimensional display was used for the confirmation of suspected findings on the three-dimensional view. Panel D is a digital photograph from optical colonoscopy performed immediately after CT virtual colonoscopy; it shows the cecal polyp (P) and the appendiceal orifice (arrow). Histologic examination revealed that the polyp was adenomatous.
## Jumlah Klien Disaring Mengikut Negeri 2016

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<td><strong>30.128</strong></td>
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</table>
52 Health Clinics in Kedah

Screening using iFOBT kit

Positive

Refer for Colonoscopy

- Hospital Sultanah Bahiyah
- Hospital Sultan Abdul Halim
- Hospital Kulim
- Hospital Langkawi

NCD Unit, JKN Kedah

report to