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Editorial

Colorectal cancer: does early detection matter?

It is not within the scope of an editorial to completely review all the literature on the subject, but this will be an attempt to summarise the topic by addressing the following five points.

(1) Does the early detection of colorectal neoplasia in the asymptomatic average risk population change the amount of morbidity and mortality from this disease?

The survival from colorectal cancer is related directly to the degree of malignant invasion through the bowel wall that has occurred by the time of diagnosis and treatment. Only about 50% of all patients, symptomatic at the time of their diagnosis, will be alive five years after treatment (surgery and oncological treatment). In contrast, all three large scale population randomised trials of faecal occult blood screening, in the UK, USA and Scandinavia, have demonstrated a significant reduction of 15%–30% in mortality caused by colorectal cancer.^{1–3} This increased survival was due to detecting more asymptomatic persons with early stage, less

invasive, and therefore a surgically curable disease. Each study used a slightly different screening protocol (annual or biennial screening, or by using non-hydrated or rehydrated faecal occult blood tests); even so, all these studies demonstrated the benefit of screening. Suffice it to say, that since then, there have been further refinements of the faecal occult blood test screening methodology, which can only increase the medical benefits.⁴

(2) If screening does reduce mortality then, at this time, what screening tests can we use to detect colorectal cancer?

The guaiac faecal occult blood test is a cheap and simple but indirect test for human haemoglobin, which is assumed to come from a bleeding large bowel neoplasm. There have been improvements made to these tests in terms of minimising the need for most dietary restrictions during its use, and improving its sensitivity and specificity.^{4,5} However, in the next few years, after more experience is obtained in Western countries, the laboratory developed

Figure 1 Worldwide range of colorectal cancer incidence in males (world age standardised rates per 100 000 males), demonstrating the highest rates in countries having a "westernised" lifestyle. Prepared by Dr A Zaubler and derived from Parkin et al.⁶

Figure 2 Worldwide range of colorectal cancer mortality in males (world age standardised rates per 100 000 males), demonstrating the countries having the highest mortality. Note that there is not complete concordance between countries having a high incidence and those having a high mortality from this cancer. Prepared by Dr A Zauber and derived from Ferlay et al.⁹

immunochemical test for human faecal haemoglobin, as routinely used in Japan, will probably replace the individual developed guaiac tests.^{6,7} The advantage of this methodology is both quality control of test development and the ability to adjust the positivity threshold to the level of community medical resources available for evaluating positive tests. The use of screening endoscopy, whether flexible sigmoidoscopy together with faecal occult blood tests, and/or total colonoscopy, are being evaluated in the USA, Norway, and the UK, but the results from randomised population mortality studies will not be available in the immediate future.⁷

(3) Which populations would benefit from early detection of large bowel neoplasia?

Colorectal cancer is a disease of westernised and westernising countries—that is, the aetiology of sporadic cases is related to diet, lifestyle, and affluence. This is reflected in fig 1, which shows that the areas of high incidence occur in diverse parts and populations of the world. These vary from North America to Western Europe, to specific areas of South America, Mediterranean, Asian, and the Pacific countries. These are the populations that can benefit the most from an early detection programme. However, when we look at mortality from colorectal cancer throughout the world (fig 2), it is also high in large areas of the world where the incidence had not been the highest. From this, it can be concluded that even in some countries not having a high incidence of colorectal cancer, their patients are probably diagnosed at a late stage and they do not receive the optimal therapy available in more affluent societies.

(4) Can we afford to implement early detection colorectal screening programs?

It has been calculated that in countries having a high incidence of colorectal cancer, such as the USA, the cost of screening is cost beneficial, and even less costly than breast cancer screening.^{10,11} Even without considering the lives

saved, there is obviously a difference in quality of life and productivity for those identified to have curable disease, in contrast to patients with invasive and metastatic large bowel cancer.¹² However, in less affluent countries there is a need to address different priorities such as child and maternal welfare, upgrading of medical facilities for the prevention, diagnosis, and treatment of common, but life threatening conditions such as alcoholism, lung cancer, as well as symptomatic colorectal cancer. Consideration of these priorities has led to different conclusions regarding the implementation of screening in various countries.⁷ In the USA, Medicare will cover the cost of annual faecal occult blood testing and periodic sigmoidoscopy, while Canada has not implemented this service in part due to a lack of qualified endoscopists. In Europe, Germany provides annual faecal occult blood test screening, the UK and Norway are performing pilot population screening studies, while most of continental Europe and Scandinavia have not implemented a screening programme both for financial considerations and, in some cases, a lack of endoscopists. Elsewhere, Japan has a well organised national faecal occult blood test screening programme, and Israel provides faecal occult blood test screening through its compulsory national health insurance. Hong Kong is starting pilot faecal occult blood test screening projects to evaluate its feasibility and the methodology suitable for their population (personal communication, Dr B Wong, Hong Kong). Australia is going ahead with governmental sponsored pilot studies of faecal occult blood testing in the average risk population in defined, but diverse, geographic areas (personal communication, Dr J St John, Melbourne). Singapore, Malaysia, and New Zealand have not implemented screening even though they have a high incidence of colorectal cancer, apparently as they concluded that they cannot afford a screening programme.

In many countries, the hesitancy to implement national colorectal screening is curious as the same reticent countries have a proactive policy of breast cancer screening

by mammography, which is an even more expensive programme. The conclusion is inevitable that emotion and political considerations, such as voter appeal, enter the considerations whether or not to implement colorectal cancer screening. There should not be any misunderstanding, women also have a large bowel! Almost half of all colorectal cancer cases occur in women.

(5) *What are the medicolegal implications of not performing early detection?*

In the USA, courts of law have now recognised that the failure to obtain a relevant family history of cancer can be considered medical negligence. In this setting, the family or treating physician needs to bring the preventive and screening recommendations to the attention of the at-risk first degree relatives under his or her care and to document this action.¹³ In the case of the average risk population, there are no such legal precedents and family physicians should base their recommendations on the best and accepted medical practice for their community and/or as recommended by their medical coverage.

In conclusion, early detection of colorectal cancer does matter. It is feasible in those countries having a high incidence and mortality from large bowel neoplasia and that also have the medical infrastructure and financial ability to afford such a programme.

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