

Colorectal Cancer Screening

INTRODUCTION

Colorectal cancer (CRC) is the commonest abdominal malignancy encountered in Australia and New Zealand and this pertains to most first world societies worldwide. Between 1 in 12-14 people develop the disease in Australia, primarily age-related, as over 95% of cases occur over the age of 50. 15,000 Australians are diagnosed annually, with 4,500 deaths per annum. In the USA the respective figures are 150,000 and 50,000. In both of these countries, even in the new millennium, 20% of patients present at diagnosis with metastatic disease.

However, in contradistinction to these alarming statistics two positive statements can be made. Firstly, the disease is curable. Secondly, this disease is preventable.

THE RATIONALE FOR CRC SCREENING

“Early” detection of the disease is equated with cure. The cure rates have improved significantly in the last fifty years as proven in several major scientific studies. This is attributable to many factors. The most important of these, is the impact of CRC screening on the disease. The screening achieves two outcomes namely the early detection of cancer, and the detection and removal of precursor lesions, namely polyps. More than 95% of colon cancers start in a polyp.

CRC is an ideal malignancy for the institution of national screening programmes. This has been addressed to some extent by the NBCSP, with the introduction of a screening programme in Australia, based on stool occult blood tests. Owing to limited funding available, the current programme has significant deficiencies.

OCCULT BLOOD STOOL TESTS (OBT)

Stool occult blood tests have been proven in scientific studies to be a valuable method of screening for CRC. Four very large randomised control trials have proven that OBT screening saves lives, with a significant reduction in mortality in up to 33% in patients with screen detected cancers compared to those presenting with clinical symptoms. These studies included the Nottingham study (1980), the Minnesota study (1993), the UK study group (John Hardcastle, 1996) and the Scandinavian study (Jorgensen, 1996).

OBT is simple, inexpensive, repeatable, and can be managed by the family practitioner. The disadvantages include its insensitivity (high false positive and negative rates), of up to 30% even with the modern immuno-chemical tests. (However “programme sensitivity”) has been demonstrated with serial testing (every one to two years for a protracted period), with significantly increased accuracy rates achieved.

COLONOSCOPY

Colonoscopy is the “gold standard” for CRC screening. The main advantage over all other screening methods (including OBT, Barium enema, CT colography), is the ability to detect small polyps and small cancers of less than 1cm in diameter. Furthermore colonoscopy allows the removal of these lesions. Nonetheless there is a “polyp miss rate” at colonoscopy shown scientifically to be less than 5% for polyps over 1cm in diameter but up to 25% for polyps less than 5mm in diameter. Colonoscopy also carries a small risk namely that of perforation (1 in 2000 cases) and of post-polypectomy bleeding, the latter dependent on the type and size of the polyp, and patient-related factors (age, anticoagulants). There are three substantial cohort studies that have proven the value of colonoscopy in reducing the incidence of CRC (U.S. National Polyp Study Group, Mayo Clinic Study, St Mark’s Hospital, London Study). These studies showed that there was a reduction in the incidence of CRC between 70 - 95% in the groups of patients who underwent serial colonoscopies compared to those patients not being assessed.

COLORECTAL CANCER RISK

There are four main categories of patients developing CRC.

1. Sporadic cases (75% plus). This group comprises mainly the elderly.
2. Family history cases (15 - 20%).
3. Inflammatory Bowel Disease.
4. Identifiable CRC syndromes (Familial Adenomatous Polyposis Syndrome, FAP) and (HNPCC, Lynch Syndrome).

The presence of a first degree family member with colorectal cancer aged less than 55years indicates a four times increased risk for the immediate family, and a two times increased risk if the index case is more than 60 years old. The risk is also substantially increased by the presence of multiple first degree relatives involved, regardless of age, and by the presence of multiple cancers in the index case. The risk of developing CRC is also doubled by the presence of adenomatous polyps in an immediate family member.

GUIDELINES FOR CRC SCREENING

The recommendations are based on risk.

1. Average risk. (No family or personal history of polyps or cancer). Colonoscopy at the age of 50, then seven to ten yearly with intervening OBTs every two years. If adenomatous polyps are shown repeat colonoscopy in three to five years dependent on the numbers, size and type of adenomatous polyp.
2. Increased risk. (Positive family history) Colonoscopy at 40 or ten years younger than the index family member case. The colonoscopy should be repeated every three to five years dependent on the extent of the family history and the age of onset of the index case.

Separate criteria pertain for the screening of FAP and HNPCC families.

Guidelines and recommendations are based on the enormous amount of scientific evidence available. The summary provided is based on the consensus and position statements of international and worldwide organisations including the Cancer Council of Australia, the American, British, European and Australasian Gastroenterological and Surgical Societies, and Colleges and Associations, The World Gastroenterology organisation, the WHO, and the UICC (Union Internationale Contre le Cancer).