

S28. Progress in Prevention and Early Detection of Colorectal Cancer

G. Rennert

CHS National Cancer Control Center and National Israeli Colorectal Cancer Detection Program, and Department of Community Medicine and Epidemiology, Carmel Medical Center and B. Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, Israel

Colorectal cancer is potentially one of the most preventable malignancies. Nutritional awareness (low fat, low red meat, high fruit and vegetable consumption) and regular physical activity have major promise for primary prevention of this malignancy, while early detection technologies have the potential of both influencing mortality from colorectal cancer as well as enhancing primary prevention through detection and removal of lesions which could potentially develop into cancer.

While the potential for prevention is great, its materialization is far from optimal. The large scale life style changes in the population that are necessary to reduce colorectal cancer rates are hard to achieve, and most of the early detection technologies are either invasive or otherwise non-appealing to the population. Thus, while not abandoning the proven prevention methods, new avenues need to be investigated for dealing with this malignancy which carries both high morbidity and high mortality.

Some new avenues are now available, both in prevention and detection.

Chemoprevention, or the use of medications to prevent disease, has been extensively explored in colorectal cancer. Some of these interventions, such as supplemental fibers, have failed to demonstrate the anticipated effect, while others, such as calcium supplementation, have been shown to reduce formation of pre-malignant

lesions, polyps or adenomas. Data accumulating in recent years have suggested that aspirin, non-steroidal anti-inflammatory drugs and selective COX-II inhibitors all have a potential to reduce both colorectal cancer and colorectal adenomas. Issues of safety and therapeutic indices have recently arisen as barriers to the use of COX-II inhibitors, and have re-drawn attention to aspirin as a potential drug of choice. Association studies have also shown a major potential role for statins in colorectal cancer prevention.

New methodologies in cancer detection involve the introduction of colonography or virtual colonoscopy, and the development of methods of detection of genetic somatic tumor markers in feces or in peripheral blood. While radiological techniques currently avoid the need for pre-medication and are less invasive, they still require similar gut cleansing as for colonoscopy, can also lead to perforation, are costly, and carry a non-negligible exposure to radiation. Genetic analysis of the stool for mutations in tumor cells is evolving as a promising technique, seeking to discover the right combination of mutations while struggling to achieve both high sensitivity and high specificity.

With all of these developments taking place, the near future will probably bring about the expected reduction in colorectal cancer mortality.