Colorectal Cancer Can Be Prevented

Generally, in cancer therapy the best hope for a successful outcome lies in achieving early cancer detection, and curative surgical resection. Colorectal cancer (CRC) prevention is an exception, and has become an important goal for health providers, physicians and the general public. CRC is a highly prevalent disease, associated with considerable mortality and morbidity rates, with more than 1,000,000 new cases and 500,000 deaths expected worldwide in 2006. CRC has a natural history of transition from precursor to malignant lesion that spans, on average, 15–20 years, providing a window of opportunity for effective intervention and prevention. Despite efforts to improve performance characteristics, some CRC screening measures, in particular occult blood testing, are relatively insensitive for detecting adenomas. For this reason, colonoscopy has become a very popular means of CRC screening, both thanks to its sensitivity in detecting small adenomas, and its therapeutic benefit from polypectomy thus preventing subsequent CRC.

Prof. Regula has been responsible for launching a very successful national screening colonoscopy program in Poland. The program involves more than 100 centers, is sponsored by the Polish government, and is well-accepted by both physicians, and more importantly, by the public. So far, more than 150,000 patients have been enrolled for screening. The results are very promising, a significant number of lives have been saved, and the overall complication rate is very low.

Colonoscopy is the 'gold standard' for CRC screening in an 'average-risk' population according to some authorities. However, despite the proven efficacy of screening colonoscopy, the limitations of high cost, invasiveness, patients' reluctance to undergo a bowel purge and the relative unavailability of colonoscopy to the entire population, mean that only 30% of the public accept this

form of screening. Some recently developed techniques may improve the yield of this program, e.g.

- (1) Prof. Burt's group informs us how to better identify high-risk subjects. In the future, based on a fingerprint of one's genome and assessment of environmental risk factors, we should be able to choose those subjects who will benefit the most from CRC screening.
- (2) Prof. Young describes novel noninvasive screening tests, some of which are already on the market, which have given very promising results thanks to their high sensitivity and specificity.
- (3) Prof. Rösch and his colleagues tell us about the new colonoscopes which are on the horizon, that will make screening colonoscopy easier, cheaper and more patient-friendly. The safety and efficacy of these new devices have been shown in preliminary human studies, but the final proof will require randomized control studies.
- (4) Drs. Blachar and Sosna update us about the strengths and weaknesses of virtual colonoscopy, and discuss its potential role for screening.

Early detection of CRC is not enough by itself. Surgery is still required, recurrence is possible, and anxiety persists. Recognition of the ability to prevent CRC by identifying and removing precancerous adenomas has led to a marked increase in the use of colonoscopy as a primary screening tool. As the emphasis of screening shifts towards precancerous adenomas, these adenomas become an attractive target for primary prevention methods. As promising as modern screening tests may be, they are relatively expensive, carry some risk, and require expertise. Most importantly, the level of patient willingness to accept screening is low in many countries, thus limiting its effectiveness.

Overall, almost all epidemiological studies have clearly demonstrated that aspirin and NSAIDs can decrease the incidence and mortality from CRC. However, some of these agents are not without risk, and can cause serious gastrointestinal and cardiovascular side effects. In modern medicine, we should aim for personalized treatment. Cancer is an unwanted event resulting from multiple etiologies, both from genetic and environmental factors. In the future, we hope to be able to offer a method of prevention to an individual, based on the molecular signature of his genome, on the molecular profile of the adenoma that

was removed, and on any other risk factors that he/she has been exposed to. In this issue, Prof. Jankowski and his colleagues share with us their vision about the current state of chemotherapy and its future.

Finally, Prof. Lynch reminds us that chemoprevention and early detection are not separate entities. It is important that in a high-risk population, a combined approach of endoscopy and drug treatment be used.

We are at the beginning of the journey, which promises to lead to prevention of CRC.

Nadir Arber, Tel Aviv