PRIMARY PREVENTION OF COLON & RECTAL CANCER

Colorectal cancer is a major cause of death in Westernized countries. Prevention of colon & rectal cancer has entered the mainstream media and hopefully is here to stay. In the past few years, much has been heard about the need for routine evaluation and screening. Katie Couric has become an outspoken advocate for the benefits of colonoscopy. The goal has been on the early detection of polyps and cancers. This can be referred to as secondary prevention.

Despite this, colon-rectal cancer remains the third most common cancer among American adults. Approximately 147,000 new cases will be diagnosed this year, and it will claim 57,000 lives. It is estimated that many of these cases are preventable. Appropriate and timely testing may be able to prevent many of these cancers.

In addition, increased emphasis must be placed on primary prevention. Primary preventions are modifiable risk factors that can increase or decrease the incidence of colon-rectal cancer. This includes lifestyle and dietary changes that may reduce or promote the development of polyps and cancers. Research continues to identify those measures that can lower one’s risk.

Diet

Fiber

Much has been written about the role of dietary fiber in the prevention of colon-rectal cancer. It was once thought to play a major role. Studies over the last few years have called this into question.

Two recently published studies seem to show an effect on polyps with long-term use of fiber rich foods. There is some evidence that a high-fiber diet that includes phytochemicals (grains, fruits and vegetables), may, in the long term, be effective.

Red Meat

A majority of studies have shown an increased risk with high intake of red meat. The elevated risk could be due to the fat or iron content of red meat. Non-red meat sources of animal protein, including low-fat dairy products, poultry and fish, have been associated with a lower risk of colon-rectal cancer. The exact mechanism is unknown, but may be associated with an overall healthier lifestyle.

Calcium

Observational studies have shown that calcium supplements can reduce the risk of colon polyp recurrence. In a large randomized study, there was a 19% reduction in the development of new polyps. As it is noted that most cancers arise from polyps, the protective effect is thought to extend to cancer. The mechanism of action may be the ability of calcium to bind the bile salts (known cancer promoters) or it may have a direct effect on the colonic mucosa.

The minimum beneficial amount seems to be 700 to 800 mg/day, with the recommendation being 1200 mg per day. The type of calcium seemed to be less important than the amount.

Folate

Folate and its metabolites are essential for DNA synthesis and repair. Low levels of folate may increase spontaneous mutation rates and cause errors in DNA duplication. There is epidemiological evidence that polyps and cancers are more common in individuals having a low folate intake. A study of 89,000 nurses showed significantly less colon-rectal cancer in those having the highest folate intake over 15 years.

Trace Metals and Vitamins

Selenium may reduce the risk of colon-rectal cancer. Those individuals with higher selenium levels had between a 34% and 50% lower risk of polyps and cancers. In a study of 61,000 Swedish women, those who consumed at least 255 mg of magnesium per day had a 40% lower risk of colon-rectal cancer than those who consumed less than 209 mg. The primary source of magnesium was in the form of vegetables, whole grains and beans. The current daily recommendation is 320 mg for women, and 420 mg for men.
The anti-oxidant vitamins A, C and E can inhibit free radical reactions and prevent oxidative damage to DNA. Unfortunately, no clinical trials have shown a beneficial effect of vitamins on colon-rectal cancer. There is evidence that Vitamin D may lower the risk of colon-rectal cancer. The mechanism of action may be Vitamin D’s role in increasing calcium absorption.

**Alcohol**
High intake of alcohol has been linked to increased risk of polyps and cancers. The data is more conclusive for polyps, but supports an association with colon-rectal cancer as well. The risk includes moderate as well as heavy drinkers. In those individuals with higher folate levels, the risk of alcohol intake seems to be reduced.

**Lifestyle**

**Smoking**
Although not entirely clear that smoking has an effect on the incidence of colon-rectal cancer, the majority of studies have demonstrated risk with a long latency period of three to four decades. Given the incidence of smoking in the US, approximately 7,000 to 9,000 deaths from colon-rectal cancer may be attributed to smoking.

**Physical Activity and Obesity**
Exercise has consistently been shown to decrease the risk of colon-rectal cancer. An approximate 50% reduction in incidence of cancer is observed in those individuals with the highest level of physical activity. Obese women were 50% more likely to develop colon-rectal cancer, and obese men 80% more likely.

**Pharmaceuticals**

**Aspirin and NSAID**
Strong epidemiologic evidence points to NSAIDs in general and aspirin specifically, as lowering the risk of colon-rectal cancer. The clinical evidence suggests a 30-50% reduction in colon-rectal cancer risk with the use of aspirin or other NSAIDs. The proper dosing is uncertain, but most studies support the use of low-dose aspirin. The side effects with the chronic use of aspirin and NSAIDs must be weighed against its potential benefit. These medicines are not universally recommended because of the potential side effects. Please talk to your physician for specific recommendations.

**Cholesterol-lowering Statins**
Statins are the most frequently prescribed medication in the US. Studies have shown that the drugs also inhibit the growth of colon cancer cells in vitro. In a randomized study of patients who were on statins, the use of statins seemed to be associated with a reduced risk of colon-rectal cancer.

**Summary**
Primary prevention can reduce the risk of colon-rectal cancer and polyps. A well balanced low-fat diet rich in plant-based foods, along with fiber, calcium, folate and minerals, would help reduce the risk of colon-rectal cancer. Regular exercise would reduce the risk of colon-rectal cancer and cardiovascular disease. Chemoprevention with aspirin and NSAIDs must be weighed against their expense and side effects. Colonoscopic screening is very important in the prevention and early detection of polyps and colon-rectal cancer.

### STEPS TO LOWER YOUR COLON CANCER RISK

- Eat a mostly plant-based diet of vegetables, fruit, whole-grains and beans.
- Eat less saturated fat from meat and high-fat dairy products.
- Drink alcohol in moderation, if at all.
- Don’t smoke.
- Maintain a healthy weight and engage in moderate daily physical activity.
- Have a regular screening for colon-rectal cancer at 50, or age 40 if someone in your family has a history of colon-rectal cancer or polyps.
- If you have had colon polyps, we suggest that you have your children, brothers/sisters and parents begin colonoscopy at age 40.