

## **Bowel Cancer and Genetics**

Bowel cancer is very common in the general population. One person in 35 will develop bowel cancer in their lifetime; therefore many families will have a relative affected with bowel cancer. It is estimated that possibly 15-35% of bowel cancer cases may have a genetic cause, with a very strong genetic predisposition in very few cases around 3%. The remaining cases occur by chance.

### **Family History**

In trying to assess the risk to an individual with a family history of bowel cancer we need accurate information about who has been affected in the family, their age at diagnosis, along with the specific site of the cancer. It is also important to have information about other cancers that have occurred in the family. Some cancers e.g. cancer of the lining of the womb (endometrial cancer) are known to have an association with bowel cancer.

Factors that may indicate a strong genetic predisposition within a family include:

- Bowel cancer that occurs at a young age (less than 45years)
- individuals with more than one primary cancer
- Several close, affected relatives on the same side of the family.

People who have only one close relative (parent, brother, sister or child) diagnosed with bowel cancer over the age of 45, can be reassured that they do not have a greatly increased risk of developing it themselves and screening may not be appropriate for them.

### **Genes**

There have been several genes discovered, faults in which are known to predispose to bowel cancer. These genes act in a dominant way. We inherit two copies of each gene from our parents, one copy from our father and one copy from our mother. In conditions that are inherited in a dominant way, only one faulty copy of the gene needs to be passed on, for the offspring to inherit the predisposition. Therefore, a parent who has this faulty gene has a 50:50 chance of passing it on to their children. We know that not every one who inherits a faulty copy of a gene goes on to develop cancer, there must be some other factors involved in the development of a cancer e.g. other genetic factors, diet, exercise, and body weight.

### **Genetic Testing**

Predictive testing for unaffected relatives is possible in a small number of families. For this to be available a genetic fault has to be identified in a family member who has already had cancer. Predictive testing has both disadvantages and advantages which should be discussed in detail with a genetic counsellor before deciding to go ahead with testing. At least two meetings are arranged to discuss these issues before testing is carried out.

## **Screening and Follow-up**

Screening for bowel cancer may be suggested if your family history is significant and increases your risk of developing bowel cancer above 1:10. The suggested method of screening at present is colonoscopy. A flexible telescope is passed along the colon via the back passage, so that the entire colon can be examined. This procedure is usually carried out, under light sedation, as an outpatient

It is thought that bowel cancer usually develops from a small swelling on the lining of the bowel wall called a polyp. There are different types of polyps. Some polyps are not thought to develop into cancer. Other polyps, called adenomas, may progress to a cancer. This change is thought to take place over many years. If polyps are seen at colonoscopy they are removed and looked at in the laboratory. Depending on the cell type of the polyp the frequency of these examinations will be decided. Regular colonoscopy and removal of polyps before they have a chance of developing into a cancer is known to significantly reduce the risk of bowel cancer occurring.

A change in bowel habit for more than a few weeks that is not explained by a change in diet or lifestyle, regardless of family history, should be reported to a family doctor for investigation. Any bleeding or mucus loss from the back passage should also be reported.

It is thought that a healthy low fat diet including lots of fruit and vegetables, reducing the consumption of red meat and barbecued foods may contribute to reducing the risk of bowel cancer. Regular exercise and maintaining an optimum weight are also thought to be helpful. Our knowledge of cancer genetics is rapidly growing; this information summarises our knowledge to date.

Further information can be found at: -

Digestive Disorders foundation [www.digestivedisorders.org.uk](http://www.digestivedisorders.org.uk)

Cancer BACUP [www.cancerbacup.org.uk](http://www.cancerbacup.org.uk)

For further information contact: -

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