During the past 30 years, the incidence of cancer of the oesophagus has been rising steadily in Western countries, more than that of any solid tumour, almost exclusively as a result of a rise in the cell type known as adenocarcinoma. The only known precursors are acid reflux (heartburn) and Barrett’s oesophagus, the incidence of which has also been rising steadily.

WHAT IS BARRETT’S OESOPHAGUS?
Barrett’s oesophagus is a condition that affects some people who have had severe heartburn, or reflux of acid and bile, for a long time. The acid and bile from the stomach can cause inflammation of the normal squamous cells lining the oesophagus (oesophagitis). In a few patients, the inflamed lining undergoes a change over a number of years to Barrett’s oesophagus.

In the UK it is estimated that one in ten people with a history of long-term heartburn develops Barrett’s oesophagus. About 5–15 per cent of those with Barrett’s oesophagus go on to develop cancer. However, this change takes place over a very long time (probably decades) and the cells go through a number of stages before cancer development. These changes are designated as dysplasia (indefinite, low grade and high grade).

In most Barrett’s patients this sequence never happens, but if it does, because it takes place over such a long time, there is an opportunity for these changes to be detected and preventive measures taken before the cancer develops. That is why people with Barrett’s oesophagus are put into a surveillance programme and urged to have regular endoscopies.

There are no specific symptoms for Barrett’s oesophagus as such, but those listed in Box 1 together or individually may be indicative.

DIAGNOSIS OF BARRETT’S OESOPHAGUS
Barrett’s oesophagus is diagnosed by endoscopic examination of the lining of the oesophagus (Figure 1). Biopsies are taken for

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If a diagnosis of Barrett’s oesophagus is confirmed, most patients are entered into a surveillance programme, with regular endoscopies and biopsies, in the hope of diagnosing the onset of dysplasia, which can be treated, before the development of cancer. However, in the case of high-grade dysplasia, some patients have already developed cancer, which is why methods of detecting cancer risk at an earlier stage than dysplasia are being researched. Currently the surveillance interval is two years for straightforward Barrett’s oesophagus and more frequently if either indefinite or low-grade dysplasia is found.

TREATMENT OF ACID REFLUX
Acid reflux may be treated with drugs, surgery or dietary modification.

Drug treatment
The main drugs used to treat symptoms of acid reflux work by suppressing acid production. There are two types: histamine receptor antagonists such as ranitidine (Zantac) and proton pump inhibitors (PPIs) such as lansoprazole, omeprazole, esomeprazole, pantoprazole and rabeprazole. PPIs mostly give better control of acid, but some people need a combination of both types.

Surgery
Acid reflux is the result of a leaking valve at the lower end of the oesophagus. This can sometimes be corrected by fundoplication to tighten the valve. The operation is usually carried out using keyhole surgery followed by a short hospital stay – seldom more than one or two days.

Dietary modification
Certain foods cause reflux but these are different in individual cases. Citrus fruit, coffee, chocolate, spicy food, alcohol and fizzy drinks are best avoided. Also eating large meals late at night should be avoided, as these can cause nocturnal reflux.

CANCER PREVENTION
Strategies for cancer prevention include surveillance and treatment for dysplastic changes.

Surveillance
Barrett’s oesophagus is a harmless condition that in most people does not progress to cancer. The usual practice in the UK is therefore not to attempt to remove it, but to put patients into a two-yearly surveillance programme. Treatment is offered only if dysplastic changes develop during surveillance, thus increasing the risk of cancer.

Low-grade dysplasia
Low-grade dysplasia has only a very slightly greater risk of progressing to cancer than Barrett’s oesophagus itself, so the most common strategy is to reduce the surveillance interval from two years to six months, in line with the current guidelines of the British Society of Gastroenterology.a

High-grade dysplasia
If Barrett’s oesophagus progresses to high-grade dysplasia, the risk of developing cancer becomes greater – about 10 per cent per year. The patient should then be referred to a centre that specialises in this condition so that the best treatment can be given in each case. There are a number of treatment options depending on the level of the dysplastic changes. The aim of these treatments is to replace the Barrett’s oesophagus with a normal squamous cell type lining.

Endoscopic mucosal resection
This procedure can be used when there is a small area of high-grade dysplasia or a nodule, although it has been used experimentally for low-grade dysplasia. It can be done during endoscopy and takes just over half an hour. There are rarely complications and those that do occur, such as bleeding, are usually minor. This can be repeated a number of times if treating nodules in different parts of the oesophagus, but if used to remove large sections of the affected lining, it could cause scarring, with resultant swallowing difficulties.

Photodynamic therapy
This can be used to remove larger sections of Barrett’s oesophagus and may result in total removal if the affected segment is not very long. First, the patient is given a drug that sensitises them to light. Then a laser beam is shone at the area with Barrett’s during endoscopy and this combination destroys the Barrett’s cells. The procedure takes about 45 minutes and can be repeated two or three times with an interval of three months. It has been shown to reduce cancer risk by about 50 per cent over five years. Patients may experience discomfort when swallowing, which resolves quite quickly. They also become light sensitive for up to three months and should avoid sunlight during that time. About 25 per cent of patients develop scarring with swallowing difficulties, but this can be overcome by stretching during an endoscopy.

Halo radiofrequency ablation
This is a new treatment that is showing great promise and avoids the risk of skin sensitivity to light. Radio waves are delivered to the area of Barrett’s through a tiny probe during endoscopy. It takes around 45 minutes and some people return to normal immediately. Some feel nausea and have pains in the chest for up to three weeks; scarring occurs in only about 1 per cent. This procedure can be repeated several times until all the dysplasia.
and even the whole segment of Barrett’s oesophagus has been removed.

SCREENING FOR BARRETT’S OESOPHAGUS
The question of screening all patients with gastro-oesophageal reflux disease for the development of Barrett’s has always been a vexed one. Endoscopy is an invasive procedure and to examine all reflux patients to detect the 5–10 per cent who will develop Barrett’s would be very resource intensive. For these reasons, endoscopic screening has never been recommended.

However, a less invasive and resource-intensive test is being evaluated in the BEST2 trial, a multicentre trial to compare the use of a ‘cytospone’ with clinically indicated endoscopy in the detection of Barrett’s. The patient swallows a gelatin-coated abrasive sponge on the end of a string, which is withdrawn after intragastric dissolution of the gelatin; the brushings are examined cytologically. The sensitivity and specificity of the diagnosis of Barrett’s will be measured in a case-controlled study to assess whether the technique should be used clinically.

RELEVANCE TO MEN’S HEALTH
Barrett’s oesophagus is of particular relevance to men. A study of patient characteristics in 27 centres in the UK showed that almost twice as many men than women get Barrett’s oesophagus, and of those who acquire the condition, three times as many go on to develop cancer.1 The reasons for this have not been established, but there is speculation that premenopausal women may gain some protection from their hormones.2 A recent study has predicted that the number of oesophageal cancers in males will rise by 40 per cent by 2020.3 This makes it particularly important that men are aware of the risk factors and seek help if necessary.

Risk factors – demographic and lifestyle
Caucasian men aged between 50 and 70 years4 appear to be at increased risk of oesophageal adenocarcinoma. It has also been associated with smoking, although this is still controversial, and obesity.5 There does not appear to be an association with alcohol.6 A strong association for the development of oesophageal adenocarcinoma in patients with Barrett’s oesophagus has been found in those who have a rhesus-negative blood group.7

NATIONAL BARRETT’S OESOPHAGUS REGISTRY
The UK Barrett’s Oesophagus Registry was established in 1996 as a joint initiative of the oesophageal section of the British Society of Gastroenterology and the European Cancer Prevention Organisation. The database contains information on more than 12 000 Barrett’s patients, registered by gastroenterologists from 44 UK centres, being the largest such database in the world.

Registry staff and research fellows have visited individual centres to obtain more detailed information from more than 3000 of these patients’ medical records to establish the factors that cause Barrett’s to progress to cancer, thus aiding prevention.

Research projects conducted on information recorded on the database have resulted in a large number of international presentations and publications, which can be found on the Barrett’s Oesophagus Campaign website (www.barrettscampaign.org.uk).

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REFERENCES