

New Research in Oesophageal and Gastric Cancers

Background

The oesophagus (more commonly known as the food pipe or gullet) is the long tube that carries food from the throat down to the stomach. Cancer of the oesophagus is also called oesophageal cancer and cancer of the stomach is also called gastric cancer. Sometimes, oesophageal and stomach cancers are described as oesophago-gastric cancers. Almost one in every 10 new cancers diagnosed in 2018 was a cancer located in the stomach or gullet. The total number of patients diagnosed with oesophago-gastric cancers in the world that year was over 1.6 million. Unfortunately, patients with this cancer type often do not have any symptoms and therefore, the cancer can have grown deeply into the wall or spread widely before a patient seeks help. The more advanced the cancer, the more difficult it is to treat it successfully. As a result, in 2018, 1.3 million people died because of having oesophago-gastric cancers.

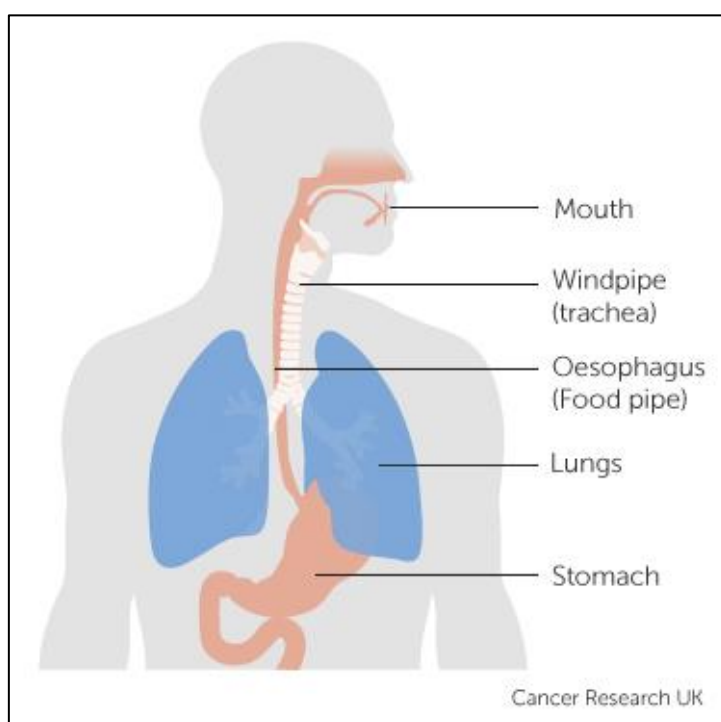


Image provided courtesy of Cancer Research UK

The standard treatment

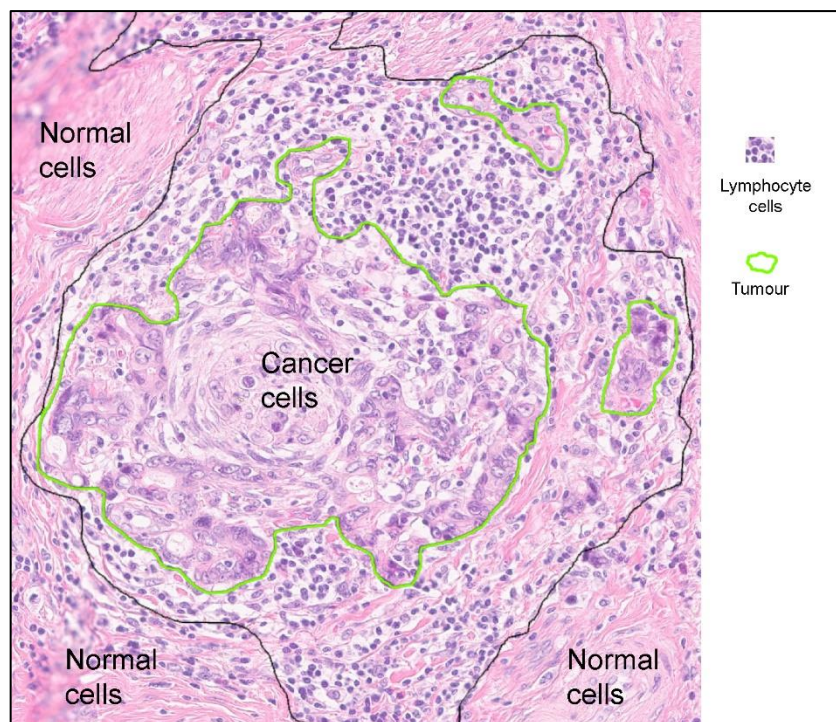
The standard treatment for this type of cancer varies depending upon how advanced the cancer is at the time of diagnosis. If possible, patients have quite radical surgery and chemotherapy either before or after the surgery and often both. The impact of

losing part of the gullet or the whole of the stomach during surgery together with the impact of chemotherapy can lead to a poor quality of life for some patients. The prospect of such a high impact can lead to some patients refusing some or all of this treatment.

Lymphocytes -What are they and what do they do?

The immune system is a complex network of cells known as immune cells, also known as white blood cells. Lymphocytes belong to a specialised subgroup of white blood cells. Our body can increase the number of lymphocytes above the normal level when there is an infection with bacteria or viruses to eliminate these organisms. Similar to the fact that our body can recognise bacteria and viruses as being foreign and dangerous, the body can recognise cancer cells and can send large numbers of immune cells including lymphocytes to the location of the cancer trying to kill the tumour cells. We can see this phenomenon in many cancers including oesophago-gastric cancer.

This image shows a microscopic view of an oesophageal cancer. The cancer cells are invading into the normal tissue, and by doing so, attract the attention of lymphocytes. Lymphocytes attack cancer cells and try to kill them which can be very successful



Chemotherapy is given to patients to kill cancer cells. However, chemotherapy is relatively non-specific and kills all fast-multiplying cells which is the reason for all these unpleasant side effects like vomiting, diarrhoea etc. Chemotherapy can also reduce the number of immune cells including the number of lymphocytes in our body and reduce your body's ability to fight infection. These unpleasant side-effects which vary by patient in type and severity, can be either temporary or, in some patients, more permanent. The side-effects induced by chemotherapy can be so severe that they have a significant impact on a patient's quality of life and, if appropriate, on their ability to return to work. These side effects can occur regardless of whether the chemotherapy is working (e.g. killing your cancer cells) or not.

So, could there be circumstances where a patient might be better off avoiding or having a reduced level of chemotherapy because his or her own lymphocytes are well capable of attacking and killing the cancer?

A new study in Oesophageal and Gastric Cancer

A pilot study conducted by researchers from the University of Leeds had shown that the number of lymphocytes found within samples taken from patient's cancer was a possible indicator of the patient's prognosis and whether or not that patient would benefit from receiving chemotherapy.

So now researchers at the University of Leeds are leading a much larger 3-year study using (in accordance with the Human tissue Act) over 50,000 tissue samples from 5,000 patients with oesophageal or gastric cancer who participated in clinical trials for the treatment of their disease in the past. Funded by Cancer Research UK, this research has recruited a team of 14 international expert pathologists to examine these tissue samples. These experts outline manually the region of the tumour and are counting the number of lymphocytes in the tumour region. They hope to confirm in this very large series of patients that the number of lymphocytes found in the cancer samples can help to determine what treatment would be best for the individual patient (surgery only, surgery + chemotherapy, chemotherapy only).

Unlike much other cancer research now, this study is safely continuing to make progress during the Coronavirus pandemic.

How might this research study help patients?

Examining a sample of tumour tissue under a microscope is how confirmation of a cancer diagnosis is currently made. The counting of lymphocytes present in the same sample can be carried out as part of that same process. Therefore, if the research is successful, it could be simple and quick to implement this approach in hospitals.

It is hoped this research will be able to establish under which circumstances (how many lymphocytes you need to have inside your tumour) it may be possible for an individual patient to avoid chemotherapy or surgery and its side effects and have the same or better survival and quality of life – safely relying instead on the patient's own immune system to fight the cancer.

Written by Prof. Heike Grabsch (University of Leeds), Jon Laye (University of Leeds) and Pete Wheatstone (Patient representative), June 2020