

# PET-CT imaging in patients with anal cancer

## What is anal cancer?

Anal cancer is a relatively rare cancer that develops in the last 3-4cm of the large bowel. The most common symptom of anal cancer is bleeding from the back passage or blood in the stool, although this can also be a symptom of less serious conditions.

## What is PET-CT?

PET-CT is an imaging technique that combines different ways of scanning the human body, namely positron emission tomography (PET) and computed tomography (CT), to get more information from the resulting images. Before the procedure, patients are given a radioactive substance which accumulates in cancer cells. The radioactive substance emits radioactive gamma rays that can be detected by the PET scanner. The resulting combined images show areas of the body where cancer cells are present. The radioactive substance is later passed out of the body in the urine or bowel movement.

## What we did

We looked at whether PET-CT imaging can help determine the stage of anal cancer (how advanced the cancer is and whether tumours have spread beyond the anal area). We also looked at whether PET-CT can monitor patients' response to treatment for anal cancer.

## What we found

PET-CT correctly identified an estimated 99% of patients who had anal cancer. The studies we found did not report how well PET-CT performed when trying to rule out anal cancer.

Evidence on using PET-CT to detect the spread of anal cancer beyond the anal area was unclear. In one study PET-CT correctly identified an estimated 93% of patients where anal cancer had spread to lymph nodes in the groin. However in a second study PET-CT was better at ruling out anal cancer that had spread to lymph nodes.

#### Using PET-CT:

- Anal cancer was found to be more advanced than previously thought in 5.1% to 37.5% of patients and less advanced in 8.2% to 26.7% of patients.
- Cancer that had spread to distant parts of the body was identified in 3% of patients after having been missed by other imaging tests.
- The area requiring radiotherapy treatment was changed for 23% of patients.
- Patient treatment plans were amended for 12.5% to 59.3% of patients.
- Treatment intent was changed from curative to palliative for 3% of patients.

We could not find sufficient evidence (one small study) to determine if PET-CT was helpful for assessing patients' response to treatment.

Having a PET-CT scan exposes patients to additional radiation due to the radioactive substance used. A PET-CT scan exposes patients to a radiation dose equivalent to 8 years of natural radiation exposure, for example from the sun.

We did not find any evidence on whether PET-CT was good value for money in patients with anal cancer.

#### What is our advice to NHSScotland?

PET-CT should be considered when assessing the stage of tumours in patients diagnosed with anal cancer. It should be used in addition to a clinical assessment and MRI or CT imaging.

For radiotherapy treatment planning in patients with anal cancer, PET-CT should be considered in addition to clinical assessment and MRI or CT imaging.

It is not possible to provide advice on the use of PET-CT for monitoring of treatment response in patients with anal cancer due to a lack of studies assessing this outcome.

There is uncertainty about the balance of costs and benefits of PET-CT for anal cancer due to a lack of published studies. Cost data for PET-CT in Scotland should be collected in future.

#### Future work

More studies are needed to find out if PET-CT is useful for assessing patient response to treatment for anal cancer and whether PET-CT has an impact on long-term patient outcomes. Studies are also needed to find out if PET-CT is good value for money in patients with anal cancer.

This plain language summary has been produced based on SHTG Advice Statement 03-19 (April 2019)