



Tumour profiling tests to guide adjuvant chemotherapy decisions in early breast cancer

SHTG Recommendation

Plain language summary | October 2023

Background

There are different types of breast cancer, and the treatment a patient will be offered depends on several factors. This can include whether the cancer has spread outside the breast, the size of the cancer, whether the cancer cells have certain receptors, and a patient's general health. In Scotland, about 70% of all breast cancers are hormone receptor (HR) positive and HER2 negative.

SHTG has published a recommendation on the use of tumour profiling tests in patients with HR positive, HER2 negative, early-stage breast cancer.

What is HR positive, HER2 negative, early-stage breast cancer?

HR positive breast cancer cells have receptors on them that hormones, like oestrogen and progesterone, can attach to and encourage the cancer cells to grow.

Some breast cancers have too much of a protein called HER2 on the surface of their cells, and this extra HER2 protein encourages the cancer cells to divide and grow. This is called HER2 positive breast cancer. Most patients with breast cancer have a normal amount of this protein, which means the cancer is **HER2 negative**.

The stage of a cancer tells you how big it is and how far it has spread. Determining the stage of a patient's breast cancer is complex, and doctors consider several factors. In very simple terms, **early-stage breast cancer** means that the cancer is either in the breast or in one to three nearby lymph nodes, or both.

What is the treatment for breast cancer?

The most common treatments for breast cancer are surgery, chemotherapy, radiotherapy and endocrine therapy. The type of treatment offered to a patient will vary depending on the type of cancer they have and their individual circumstances. In most cases, surgery will be offered in the first instance.

Some patients with early-stage breast cancer may need further treatment after they have surgery, to help prevent the cancer from recurring or spreading to other parts of the body. Doctors take several factors into consideration when deciding what further treatment to offer after surgery, based on the cancer's characteristics and a patient's preferences. Online tools (such as PREDICT or the Nottingham Prognostic Index) are also used to help guide doctors decision making.

What are tumour profiling tests?

Sometimes it is not clear whether chemotherapy is needed, and tumour profiling tests can provide additional information to help patients decide, with their doctor, whether or not to have chemotherapy. These tests give information on the activity of genes in a patient's breast cancer, and how likely it is that the cancer will recur. These tests require a sample of the breast cancer tissue (removed during surgery or biopsy).

What we did

We assessed four tumour profiling tests (Endopredict[®], MammaPrint[®], Oncotype DX[®] and Prosigna[®]). We looked at published studies on the tests, in order to establish whether the tests are reliable and improve outcomes for patients. We also assessed whether the tests offered good value for money.

What is our conclusion?

Tumour profiling tests should not be used routinely in patients who have early-stage breast cancer that has spread to the lymph nodes.

In patients who are postmenopausal (or aged over 50), with early-stage breast cancer that has not spread to any lymph nodes:

Endopredict[®], MammaPrint[®], Oncotype DX[®] and Prosigna can be used to help a patient and their clinician decide whether to have chemotherapy if there is an intermediate risk that the cancer will recur in other areas of the body.

In patients who are premenopausal (or aged 50 and under), with early-stage breast cancer that has not spread to any lymph nodes:

Oncotype DX[®] can be used to help a patient and their clinician decide whether to have chemotherapy if there is an intermediate risk that the cancer will recur in other areas of the body.

What next?

The SHTG Recommendation will be used to inform the use of tumour profiling tests for guiding chemotherapy decisions for patients with early-stage breast cancer in NHSScotland. The Recommendation will be shared with colleagues in the Scottish Cancer Network, and will be made available to clinicians and the public via the [SHTG website](#).

This plain language summary has been produced based on SHTG
Recommendation: Tumour profiling tests to guide adjuvant chemotherapy
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