Royal Papworth Hospital
NHS Foundation Trust

Neoadjuvant lung cancer treatment

Patient information sheet

What is a 'neoadjuvant'cancer treatment?

'Neoadjuvant' means any treatment given before the main treatment for your cancer. The surgeon you have seen is hoping to perform an operation to remove your cancer. In this case, neoadjuvant treatment refers to medication which is given before the operation. We know that for some people, giving this medication prior to their operation can lead to better outcomes after surgery, which is why we are discussing this with you.

Why am I being offered neoadjuvant treatment?

When someone is newly diagnosed with lung cancer, a meeting takes place between a group of doctors to discuss the best treatment for you. This group will include a surgeon and an oncologist (cancer doctor). This treatment is being discussed with you as they feel you may benefit from it.

Recent research has shown that for some patients, having neoadjuvant treatment before surgery increases the chance of cure, when compared to having surgery alone. Guidelines suggest that we should consider neoadjuvant treatment for anyone whose lung cancer is bigger than 4cm, or spread to nearby lymph nodes, but still suitable for an operation (stage 2 or stage 3A disease).

We know that neoadjuvant treatment reduces the chance of the cancer coming back after the operation, and can also increase life expectancy. It does this through killing any tumour cells that may have spread through the bloodstream to other places, which are too small to see on CT scans (micrometastases). Treating these before the operation reduces the chances of them causing problems later on. It may also shrink down your lung tumour, meaning you may be able to have a smaller operation.

What treatment is given?

The treatment will involve three drugs. Two of these drugs will be chemotherapy drugs, and one of these drugs will be an immunotherapy. We sometimes call this treatment 'chemo-immunotherapy'.

These drugs are prescribed by an oncologist. Before starting treatment you will see an oncologist to check this is the right treatment for you and answer any questions you may have. This treatment may be given at a different hospital to where you will have your operation.

These drugs are all given through a drip, as an outpatient, once every three weeks. We would plan to give you three doses in total. Each treatment will take around half a day to give through the drip. Before every dose you will be reviewed to check how you are feeling and do a blood test to ensure it is safe to go ahead.

After you have had three doses of treatment, you will have another CT scan to see how you have responded. As long as the doctors who reviewed your case before you had your chemoimmunotherapy still feel that your cancer can be removed, your operation will go ahead as planned. Your surgeon will probably talk to you again before the operation, but further tests should not be necessary.

What chemotherapy is used?

The chemotherapy offered will depend on which type of lung cancer you have. Chemotherapy works by destroying rapidly growing cancer cells.

- If you have squamous cell lung cancer, we normally use carboplatin and paclitaxel.

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- If you have adenocarcinoma, we normally use carboplatin and pemetrexed.

There may be occasions where other chemotherapies are used (these include cisplatin, vinorelbine and gemcitabine) – your treating team will discuss this with you if this is the case.

Please see the chemotherapy patient information leaflet that you will be given for further information about this treatment.

What immunotherapy is used?

The immunotherapy drug used is called nivolumab. Immunotherapy works by boosting the immune system to help the body find and destroy the cancer cells.

Please see the nivolumab patient information leaflet that you will be given for further details about this treatment.

Is there anybody who should not have neoadjuvant treatment?

Neoadjuvant treatment has not been tested in patients whose lung cancers are smaller than 4cm and do not appear to involve the lymph nodes, so it is not recommended for these patients.

If the cancer has spread in such a way that an operation is not possible, neoadjuvant treatment is not recommended and an alternative treatment will be suggested.

Neoadjuvant treatment should not be given to patients if their cancer has specific mutations in the DNA coding for the EGFR or ALK gene as it is not likely to be beneficial. This DNA test can sometimes take a little while to come back – your medical team will discuss this with you if it is required.

Sometimes other medical conditions that you already have mean that neoadjuvant treatment isn't right for you. Your oncologist will assess this fully at your appointment.

If I have neoadjuvant treatment when will I have my operation?

Surgery would normally happen two to three months after starting the neoadjuvant treatment. We would normally aim to perform the operation less than six weeks after your last dose of chemo-immunotherapy.

Does delaying my surgery to have this treatment affect my chances of being able to have an operation?

Research has shown that the vast majority of patients who have neoadjuvant treatment go on to have surgery. Neoadjuvanttreatment is extremely effective for the majority of patients, both for shrinking the cancer down and reducing the chance of it returning.

A very small number of patients will not go on to have an operation, either because the cancer does not respond to the treatment, or because of a complication of the treatment. If this happens to you, your treatment team will discuss other options.

Do I have to have neoadjuvant treatment?

No. If you and your doctors decide this treatment isn't right for you, you may be able to go straight to surgery or have alternative treatments such as radiotherapy, with or without, chemotherapy.

Will I need to have any more treatment after my surgery?

All being well, we don't routinely give any further chemotherapy or immunotherapy after your operation. You will be followed up with regular clinical review and imaging to monitor how you are getting on.

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Neoadjuvant Nivolumab plus Chemotherapy in Resectable Lung Cancer; Forde et al.; N Engl J Med 2022; 386:1973-1985