NHS
Lancashire Teaching Hospitals
NHS Foundation Trust

Information for patients and carers

Having a Lung Perfusion (V/Q) scan or a Computed Tomography Pulmonary Angiogram (CTPA) scan of your lungs whilst pregnant

Introduction

This leaflet has been written to provide information about two different types of lung scan performed within the hospital for pregnant patients:

- Lung Perfusion (V/Q) scan
- Computed Tomography Pulmonary Angiogram (CTPA) scan

This is so you are informed about the amount of radiation that you and your unborn child will receive when you have one of these scans, and the associated risks.

Your doctor, together with a radiologist (doctor specialising in imaging), will decide which type of scan is most appropriate for you to have. They will take into account your medical history and the stage of your pregnancy.

Whichever scan is performed, there is a chance it may not give a definitive result. Therefore, it is possible that you may also need to have the alternative scan (e.g., if you have had a lung perfusion scan first, you may go on to have a CTPA scan as well). Your doctor will discuss this with you.

Why do I need a Lung Scan or a CTPA Scan?

Your consultant has requested a scan to look at your lungs. This scan will show whether or not there is a blood clot in your lungs.

There are two types of scan that can be performed to look at your lungs:

- The first is a Lung Perfusion Scan (often referred to as a V/Q Scan) and is performed in the Nuclear Medicine Department
- The second type of scan is a Computed Tomography Pulmonary Angiogram (CTPA) scan and is performed in the CT Scan Department

Both scans involve the use of ionising radiation and an injection. Please read this information leaflet for an overview of each type of scan.

The benefits and risks of examinations that use ionising radiation

Examinations using radiation are only performed when absolutely necessary. This means the clinical benefit to you (and your unborn child) of having the examination outweighs the risk of not having it as follows:

- You may have a blood clot in your lungs
  If this is not found and therefore not treated, it could lead to life threatening conditions such as pulmonary hypertension or stroke
- By not having a scan, you may be given blood thinning treatment for a greater length of time than is necessary

The request for a lung scan has been discussed with the senior medical team looking after you and they consider that the benefit to you and your baby of diagnosing the cause of your symptoms outweighs the very small risk associated with the radiation dose from a scan.

You should be fully informed of all the risks and benefits involved in the procedure.

What are the radiation risks to me?

The radiation doses from both examinations are small.

The only known effect to the exposed individual at these low doses is a very slight increase in the chance of cancer occurring, many years or even decades after radiation exposure. For context, 1 in 2 people will develop cancer at some point in their lives. The additional risk from these scans is negligible.

What are the radiation risks to my baby?

The risks to your baby from the small amount of radiation are extremely low. The table below gives an idea of the scale of the risks involved compared to the natural risks.

	Lung Scan Nuclear Medicine	CTPA Scan Computed Tomography (CT)	Natural Risk
What is the risk of causing cancer in childhood?	**Very Small** 1 in 100,000 to 1 in 10,000	**Very Small** 1 in 1,000,000 to 1 in 100,000	About 1 in 500
What is the risk of causing significant hereditary disease?	**Very Small** About 1 in 435,000	**Very Small** About 1 in 5,500,000	About 1 in 50

Data from HPA report: Protection of Pregnant Patients during Diagnostic Medical Exposures to Ionising Radiation, March 2009

How much radiation is involved?

Whole body radiation dose is measured in units called milliSieverts (mSv):

- We are all exposed to natural background radiation every day of our lives. This comes from the ground and building materials around us, the air we breathe, the food we eat and even outer space

- The average background radiation dose per year from naturally occurring radiation in the UK is 2.3mSv, but it is up to 10mSv in some parts of the country
- A CTPA scan will give you a radiation dose of 3mSv and a radiation dose to your baby of 0.04mSv
- A Lung Perfusion scan will give you a radiation dose of approximately 0.5mSv and a radiation dose to your baby of 0.2mSv

As can be seen, the radiation dose from either scan is small.

Are there any other risks?

A CTPA scan uses an iodine-based contrast agent. It is injected into a vein to highlight the blood vessels. The contrast is filtered from your blood stream by your kidneys.

You may need a blood test prior to your scan to check your kidney function (if you have not already had one in the previous three months). This is because it is possible for the contrast to cause a reduction of kidney function. This is extremely rare and is only significant if your kidneys are not working well already.

In this situation, the specialist doctor (radiologist) will assess whether this risk to your health is greater than the risk of an untreated pulmonary embolism. In most patients, the benefits of the contrast injection outweigh the risk of reduced kidney function. To further reduce these risks, it is important that you are well hydrated and continue to drink plenty of fluids (around 2 litres) over the 48 hours following the test.

CTPA scans are not suitable for everyone. If you have previously had a reaction to x-ray contrast, have an allergy to iodine or have poorly functioning kidneys, it may not be possible for you to have a CTPA.

A Lung Perfusion scan also uses an injection into a vein to administer the radioactivity. The radioactivity is attached to a drug that is made from human albumin (a protein from blood).

It is screened and is safe to use, however some people may refuse to receive a human blood product because of religious beliefs. This may mean that a Lung Perfusion scan is not suitable for you and you may be offered a CTPA.

Contact details

Should you require further advice or information please contact Nuclear Medicine on 01772 522381.

Sources of further information

www.lancsteachinghospitals.nhs.uk
www.nhs.uk
www.patient.co.uk
www.accessable.co.uk
www.gov.uk/government/collections/medical-radiation-uses-dose-measurements-and-safety-advice
X-Rays: How safe are they? Radiological Protection Board

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Please ask a member of staff if you would like help in understanding this information.
This information can be made available in large print, audio, Braille and in other languages.

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