Maidstone and Tunbridge Wells NHS Trust

Patient Information Sheet

Title of Project: In patients with breast cancer, can imaging specialists be taught to use an advanced ultrasound technique to successfully find cancer deposits in armpit sentinel lymph nodes using microbubbles injected into the breast?

Name of Chief Investigator: Karina Cox (Consultant Breast Surgeon at Maidstone and Tunbridge Wells NHS Trust).

Invitation

We'd like to invite you to take part in a study using ultrasound and a contrast known as microbubbles injected into the breast to find and use a needle biopsy on the first lymph nodes to take tissue fluid from the breast (sentinel lymph nodes). Joining the study is entirely up to you and before you decide, we would like you to understand why the research is being done and what it would involve for you. One of our team will go through this information sheet with you, to help you decide whether or not you would like to take part and answer any questions that you may have. This should take about 20 minutes. Please feel free to talk to others about the study.

Summary

Around 46,000 people are diagnosed with invasive breast cancer every year in the UK. As well as removing the tumour in the breast, they are advised to have some or all of their lymph nodes removed from the armpit. As most patients have early stage breast cancer, about 70% will not have cancer deposits in the lymph nodes. Therefore, many patients may risk complications from armpit surgery such as infection, bleeding and fluid collection as well as arm swelling, loss of feeling or sometimes pain down the arm, for no benefit. There is already a lot of effort to reduce armpit surgery and better use of ultrasound may help to identify patients who don't need this surgery at all.

Most patients in the UK now only have 1-3 sentinel (key) lymph nodes removed with surgery but it still has to be done under general anaesthetic with a wound in the armpit. Removing sentinel lymph nodes as well as the breast cancer increases the total length of time under anaesthetic and the surgeon needs to use a radioactive tracer and a blue dye to find the sentinel lymph nodes in the fatty tissue of the armpit. The radioactive tracer can be hard to get hold of and the blue dye has a risk of causing allergic reactions in 1/100 patients. Armpit surgery can result in complications including bleeding which may require an emergency operation to remove the blood, infection that can cause the wound to break down, and fluid collections, which need to be drained. These complications may delay other cancer treatments like chemotherapy and radiotherapy. In addition, long-term problems such as arm swelling occur in about 1 in 20 patients.

There is now a real drive to stop over treating early breast cancer and this includes finding an alternative to armpit surgery to prevent unwanted problems. Every breast cancer patient has an ultrasound and the microbubbles procedure shows great promise as a replacement for armpit surgery but this needs to be tested by research.

We are planning to train ultrasound specialists from five hospitals to perform an advanced ultrasound technique, which uses microbubbles injected into the breast that can be seen with the ultrasound and followed into the armpit to find the sentinel (or key) lymph nodes. Microbubbles are bubbles of hexafluoride gas, which are smaller than a red blood cell. The specialist can then take a needle biopsy to see if the sentinel lymph nodes contain cancer deposits. It is important to prove that local specialists can easily and reliably perform the microbubbles procedure in the breast clinic and highlight to the doctors looking after the patient whether the sentinel lymph nodes contain cancerous deposits or not. We will also look at how satisfied patients are with the procedure and check for complications like bleeding after the biopsy. The hexafluoride gas is harmlessly removed from the body by the lungs in your breath.

All women above the age of 18 who have recently been told that they have early invasive breast cancer with a normal conventional armpit ultrasound can be involved in the study.

We are planning to run the study for 2 years and involve a total of 250 women.

What would taking part involve?

- If you agree to take part, you will need to come back to your breast unit's ultrasound department to have the microbubbles procedure. The imaging specialist will use some local anaesthetic to numb the area and will inject a small amount of microbubbles into your breast at the edge of the nipple. They will then massage the area to encourage the microbubbles to absorb into the breast. The ultrasound machine will be used to track the microbubbles as they pass through the breast to the sentinel lymph node in the armpit. The imaging specialist will use a bit more local anaesthetic in the armpit and then use a standard biopsy needle to take biopsies of the sentinel lymph node. They will also leave a small marker clip to show which lymph node has been biopsied. Your breast unit will then give you standard advice about what to do and expect after a biopsy procedure.
- You will return to see your surgical team about a week after the microbubbles procedure for the results of the sentinel lymph node biopsy. Sometimes the imaging specialist cannot see a sentinel lymph node or the biopsy misses the sentinel lymph node, which means the procedure was not successful. Together with your surgical team, you will then talk a bit more about your treatment and decide what type of operation you will have in your armpit.
- You will be asked to fill out a satisfaction questionnaire about the

microbubbles procedure.
- Your breast and armpit operation will then proceed as normal.
- You will be asked to fill out a satisfaction questionnaire about your armpit surgery and that marks the end of your involvement with the study. You will them continue with your treatment as decided by you and your doctors.

What are the potential benefits in taking part?

If the sentinel lymph node microbubbles biopsy does not show cancerous cells, then it is unlikely that armpit surgery will find a significant number of cancerous lymph nodes that have been missed by both the conventional and microbubble ultrasound tests. If a cancerous deposit is found in the sentinel lymph node with the microbubbles biopsy then you and your doctors may decide to change your treatment plan from surgery to chemotherapy first. If you are having a mastectomy, finding a cancerous deposit in the sentinel lymph node may mean that your doctors will recommend radiotherapy after the mastectomy. Radiotherapy can negatively affect the final cosmetic result if you are having a reconstruction so you may decide to have the reconstruction later to get the best result.

What are the potential disadvantages and risks of taking part?

The microbubbles procedure has been performed on more than 2,000 patients at Maidstone and Tunbridge Wells Hospitals in Kent and is very safe. Very few people experience irritation or allergy to the injected microbubbles (about 1/1000) and there have been few problems with bleeding after the biopsy (less than 1/100).

How is your personal information protected?

All information collected about you for this study will be subject to the General Data Protection Regulation and Data Protection Act 2018 and will be kept strictly confidential. Maidstone and Tunbridge Wells NHS Trust are the sponsor for the study, based in the United Kingdom and will act as data controller for the study, this means that they are responsible for looking after your data and using it properly.

As part of the study we will be collecting basic information about you (initials, date of birth, and ethnicity) as well as whether you have any other medical problems and if you are still having menstrual periods. The trial office will maintain a trial database and this will meet industry-standard security criteria and will only be accessible to authorized personnel. You will also be given a unique number for the trial.

Personal Information about you will be kept for at least 5 years after the study has finished, to allow the results of the study to be verified if needed. The results and the raw information from your assigned study number will then exist in the

database without the link to your personal information. In this way, the results of the study can be shared with other researchers so they can benefit from any new findings. This is an important way to keep medical research moving forward. Any such request is carefully considered by the study researchers and will only be granted if the necessary procedures and approvals are in place.

At any point, you can request to withdraw from the study, without giving a reason and this will not effect your treatment or your care.

Who has organized and funded this study?

The co-investigators represent breast imaging specialists, breast surgeons, breast oncologists and breast pathologists from across the UK as well as statisticians from the Warwick Clinical Trials Unit and a patient representative. The sponsor of the study is Maidstone and Tunbridge Wells NHS Trust and the charity Breast Cancer Now has funded the study.

Further information and contact details

Please contact the Research Nurses at your hospital if you want more information about this study.

Please contact the Breast Care Nurse Specialists for independent support and advice.

What happens when the study finishes?

You will be sent a thank you letter and Feedback Forms from Maidstone and Tunbridge Wells NHS Trust. Your feedback is really important and helps us improve the way that we involve patients in medical research.

How will I know about the results of the study?

The results of the study will be presented at Medical Meetings and be published in a Medical Journal. You will also be sent a report of the study (with a link to the medical journal) using words that can be easily understood by people who do not have a background in medicine or science. We will also publish the report on the website of Breast Cancer Now.