University Hospitals Sussex
NHS Foundation Trust

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PARTICIPANT INFORMATION SHEET

SHORT TITLE: Pace & diagnose in suspected cardiomyopathy

FULL TITLE:

Lead-in-sheath endomyocardial biopsy: a prospective cohort study evaluating and advancing this technique in suspected cardiac sarcoidosis and amyloidosis.

CHIEF INVESTIGATOR: Dr John Silberbauer

Invitation

We would like to invite you to take part in our research study. Taking part is entirely up to you. Before you decide, it is important for you to understand why the study is being done and what it will involve. Please read the following information carefully. One of our research team will go through this information sheet with you. Please do ask the research team (contact details at the end of this document) if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part and feel free to discuss the study with your family/friends/GP.

Background to the study

As heart doctors we recommend a pacemaker or defibrillator for patients with an abnormal slow or fast heat beat (‘arrhythmia’), or a weak heart pump (‘heart failure’). This is to

improve symptoms, and prolong life. We often do not understand the cause for these issues with the heart rhythm or pump.

In some studies, heart doctors have found it is possible, safe, and straightforward to take a small (1-3mm) sample of tissue at the time of putting in the pacemaker or defibrillator. This has been done with the traditional equipment used to take a small sample of tissue, and also with the pacemaker lead itself. The pacemaker equipment naturally allows us to take a small sample safely, placing the lead.

This image shows how pacemaker leads are inserted in the heart with a keyhole approach from the blood vessel near the collar bone. These are attached to the pacemaker box which sits on the chest wall, under the skin and soft tissue.

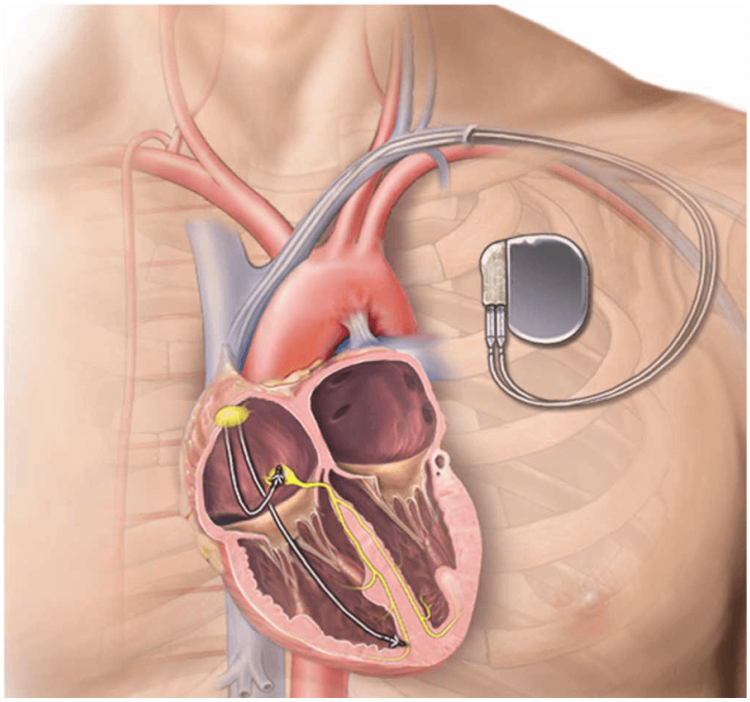
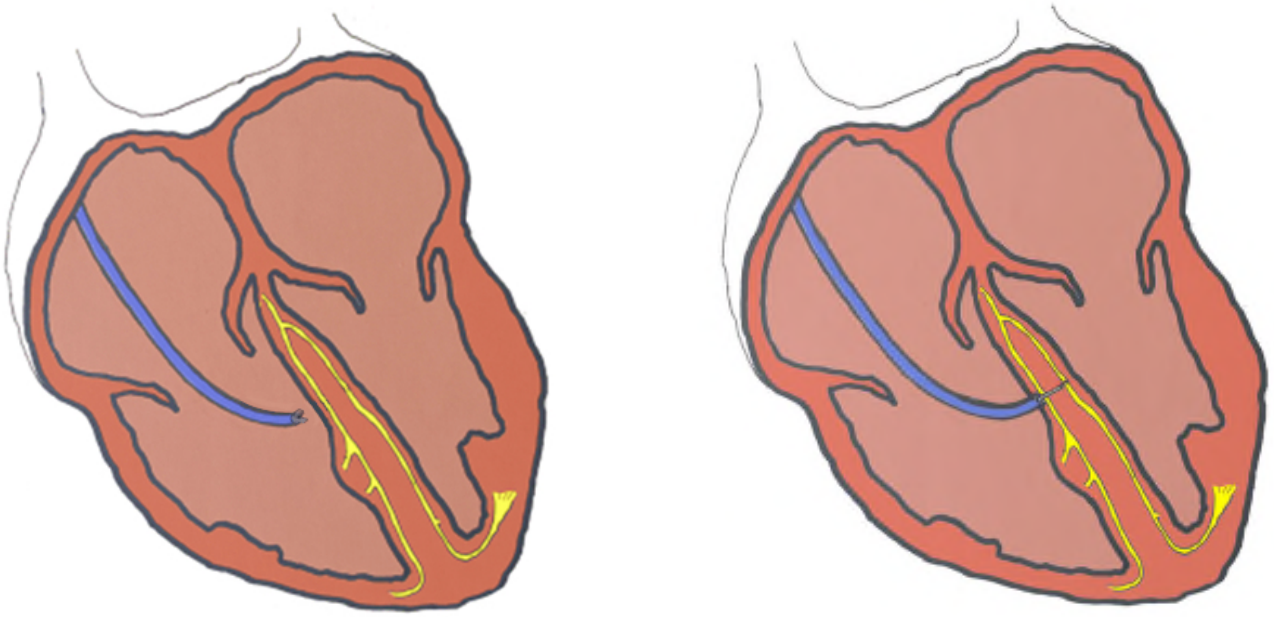


Image credit: healthdirect.org.au

This image below shows how heart tissue is taken with a 'bioptome' – a tiny forceps (left). The image on the right shows the pacemaker lead being taken to a safe position in the heart. It helps to show how 1-3mm of tissue is naturally taken on the tip of the lead.



The small sample taken at the time of inserting a pacemaker can help to find a cause for the heart rhythm or pump issues. This allows more treatment to be given, targeting the underlying cause.

Some conditions which can affect the heart, and may be found when heart tissue is analysed include ‘sarcoidosis’ (which causes inflammation in the heart) and ‘amyloidosis’ (which causes stiffness in the heart). If these conditions are found, specific treatment is often given.

In this study we are able to take small tissue samples at the time of your pacemaker procedure in the traditional way with a bioptome (as part of standard care), and to analyse further tissue samples retained on the tip of the pacemaker lead (as part of the study).

What is the purpose of this study?

The purpose of this study is to assess whether it is helpful to take a small sample of tissue with the pacing lead at the time of inserting a pacemaker. This could mean it would not be necessary in the future to take a separate sample using traditional equipment to find a cause for the heart rhythm or pump issues.

Why have I been invited to take part?

You have been invited because the heart team at University Hospitals Sussex have recommended a pacemaker or defibrillator as the best treatment for you. Reviewing your clinical history and scans, it is felt that taking a small sample of tissue at the time of the pacemaker procedure might be helpful in understanding and treating your heart condition.

Do I have to take part?

No, you do not have to take part in the study, it is entirely up to you. If you decide to take part, you will be asked to provide informed consent. This means someone will explain the study to you and give you the opportunity to ask any questions before you are asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time without giving a reason. If at any point you wish to withdraw from the study please use the contact details provided to let the team know. A decision to withdraw at any time, or a decision not to take part, will not affect your care in any way.

What would taking part involve?

- We will firstly check you are eligible to take part in the study and are willing to take part.
- You will be given information regarding the study and be given time to consider whether or not to take part.

- If you agree to take part in the study you will be asked to sign a consent form. No study related activity will take place until you have provided your consent.
- Your involvement in the study will allow us to assess if taking a small sample of tissue at the time of the pacemaker insertion is helpful.
- Once you have agreed to take part you will undergo your pacemaker procedure (separate leaflets are available to explain the procedure in more detail and these can be provided by your clinical team).
    - During the procedure, before fixing the pacemaker lead, small samples of tissue will be taken with the bioptome (standard care), and any tissue taken in placing the pacemaker lead will also be looked at under the microscope (if you wish to take part in the study). The pacing lead samples give up to three additional 1-3mm samples, which can be analysed to look for a cause for your heart disease. Photographs will be taken of the tissue samples and stored securely.
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    - Your tissue samples will be looked at under the microscope by a tissue specialist ('pathologist') at the Royal Sussex County Hospital, and by a heart pathologist at Papworth Hospital. Your standard of care Bioptome sample(s) will be stored securely at University Hospitals Sussex NHS Foundation Trust. Slides of the tissue samples obtained from the pacing lead will be stored at Royal Papworth hospital for the duration of the research study. Tissue samples from the pacing lead will then be destroyed in accordance with Human Tissue Authority's Code of Practice once they have been analysed. At the end of the study, slides from your standard of care Bioptome sample will be returned by Papworth to University Hospitals Sussex NHS Foundation Trust and will be stored as per standard operating procedures.

- With your consent, we will also analyse the photographs of the samples using an AI tool that we are developing with the University of Sussex. This may be more efficient at identifying the type of tissue collected than by using a microscope alone. This could therefore improve how we identify a cause of heart problems in the future.
- 4-6 months after your pacemaker procedure (to allow enough time to have full results) your clinical team will invite you back for a routine follow up appointment. During this visit we will feed back any results from the microscope analysis of the tissue samples taken, and explain any changes to treating your heart condition.
- Your participation in the study will end after this follow-up appointment and you will not require any additional clinic visits beyond your usual clinical care.
- As part of standard care (rather than due to the research study), you may have heart scans. These might include ultrasound (echocardiogram), MRI, and / or PET-CT scans. These will all be explained to you by the doctors looking after your heart condition.

What are the possible benefits of taking part?

In some (but not all) patients, taking a small sample of tissue will help us understand the cause for your heart disease. In some cases this may allow different treatment.

The hope is also that this study will help us understand how best to take samples at the time of pacemaker procedures – comparing the bioptome method for taking samples, and using the pacemaker lead. Studies suggest that taking more samples can be helpful in increasing the chances of finding a cause. Samples are 1-3 mm each, and heart conditions can affect the heart muscle in a patchy way – with areas of normal and abnormal tissue.

What are the possible risks of taking part?

The risks of the pacemaker procedure and biopsy (bioptome - standard care) will be explained in detail prior to going ahead. These include bleeding, infection, pacemaker lead failure over the short or longer term, abnormal heart rhythms (monitored for). It is rare (1%

or 1 in 100) to experience a serious complication such as bleeding around the heart or an air leak around the lung. These can be treated by inserting a drain, to treat the bleeding / air leak. This is for the standard of care.

Analysing the tissue retained from the lead (as part of the study), is not expected to cause additional risk. It will likely add 15-30 minutes to the procedure time (with a usual procedure time of 1.5-2.5 hours for standard care undergoing a pacemaker and biopsy). In a preliminary study where this technique was evaluated, the risk was lower than a traditional biopsy. Studies suggest potential benefit (without any increased risk or discomfort) from taking more microscopic (1-3 mm) samples.

If you take part in this study you will have several cardiology procedures. Some of these will be extra to those that you would have if you did not take part. These procedures use ionising radiation to form images of your body and provide treatment and provide your doctor with other clinical information. Ionising radiation may cause cancer many years or decades after the exposure. We are all at risk of developing cancer during our lifetime. 50% of the population is likely to develop one of the many forms of cancer at some stage during our lifetime. Taking part in this study will add only a very small chance of this happening to you.

Beyond this we believe that there are no additional risks from taking part in the study itself. The procedure will take slightly longer (~15 minutes). There will still be the same risks associated with the pacemaker procedure itself and these will be explained to you by your heart doctor. If you would like more information about the risks of the pacemaker then please ask us and we can provide you with a separate information sheet.

What if there is a problem?

This study is being conducted in NHS facilities by NHS staff fully trained in all the procedures that you would undergo in this study. You will therefore be covered by the standard NHS indemnity

that applies to all procedures performed within the NHS. Your follow-up will proceed along the normal pattern of standard of care.

If you have a concern about any aspect of this study, you should speak to a member of the research team who will do their best to answer your questions. If you remain unhappy and wish to complain formally, you can do this through PALS (Patient Advice and Liaison Service) on 01273 664511/664973 or by email uhsussex.pals@nhs.net

What will happen if I don't want to carry on with the study?

Participation in this research study is entirely voluntary and you are free to withdraw from the study at any time without having to give a reason. Withdrawing from the study will not affect your usual care in any way. If you wish to withdraw from the study at any time please either contact the chief investigation or one of our research nursing team on*: (details to be provided once RN allocated).* If you withdraw from the study, we will not collect any more data for the research or contact you again.

Will my taking part in the study be kept confidential?

Yes. All information about you will be handled in strict confidence. You will not be identified by name, National Insurance number, address, telephone number, or any other direct personal identifier in study records. NHS number will be used for research records held on NHS servers – this will be kept in a linked list stored outside the study database. The samples will be used to create slides to view under a microscope. Only the slides will be sent to Papworth for specialist cardiac pathology assessment (a cardiac pathologist is an expert in looking at heart tissue slides under the microscope). The research slides will be sent with a study ID only, and the standard of care slides from the bioptome sample will be

returned to the Royal Sussex County Hospital to be stored. The extra research slides from the pacing lead samples will be disposed of once they have been analysed.

If you agree to photographs of the tissue samples being shared for analysis using an AI tool, these will be securely transferred to the University of Sussex using a study ID only. The responsibility for the security of these images will be covered by an agreement between University Hospitals Sussex NHS Foundation Trust and the University.

If you join the study, some parts of your medical records and the data collected may be looked at by authorised persons from regulatory bodies of from the sponsoring organisation (University Hospitals Sussex NHS Foundation Trust) to check that the study is being carried out correctly and ethically. The handling, storage, transfer and destruction of your data will comply with the Data Protection Act 2018 and UK General Data Protection Regulations.

What will happen to the results of this study?

The results of this study will be published in medical journals and shown at medical meetings. You will not be identified (by name or any other means) in any of these publications. If you consent to be contacted again when the results are available, we can send a summary of our findings and we will ask you to provide your preferred contact details on the consent form.

Who is organising and funding this study?

University Hospitals Sussex NHS Foundation Trust is sponsoring the study. Funding for the study is from Brighton and Sussex Medical School.

Who has reviewed this study?

All research in the NHS is looked at by an independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by Plymouth and Cornwall Research Ethics Committee.

How have patients and the public been involved in this study?

Our NHS Trust patient and public involvement groups (the Trust Research Champions, and the Cardiac Patients Improvement Group) have been consulted regarding the study design and development of all written materials provided to patients as part of the study.

How will we use information about you?

We will need to use information from your medical records for this research project. In addition to the planned assessments performed as part of the project, this information will include your:

- Age
- Sex
- Initials
- NHS Number
- Ethnicity
- Relevant Medical History

People will use this information to do the research or to check your records to make sure that the research is being done properly.

People who do not need to know who you are will not be able to see your name or contact details. Your data will have a coded number instead.

We will keep all information about you safe and secure by:

- Only using a code number to identify you in research records
- Only collecting data essential for analysing the outcomes of the research
- Storing all research records securely in NHS electronic storage systems or in locked NHS facilities
- Ensuring appropriate contracts or agreements are in place with other organisations to ensure samples and photographs with study ID numbers are handled securely.

University Hospital Sussex (Sponsor) is responsible for looking after your information. We will not share your information related to this research project with other organisations, without an appropriate data sharing agreement in place and appropriate consent given. Your data will not be shared outside the UK.

How will we use information about you after the study ends?

We will keep your study data for a maximum of 5 years. The study data will then be fully anonymised and securely archived or destroyed. We will write our reports in a way that no-one can work out that you took part in the study. Once we have finished the study, we will keep some of the data so we can check the results. We will write our reports in a way that no-one can work out that you took part in the study.

You may withdraw your consent for the use of your sample(s) at any time by contacting [Contact Details]. If you withdraw, your sample(s) will not be used in further research, but data already collected may not be destroyed. This study has been reviewed and approved by Plymouth and Cornwall and complies with the requirements of the Human Tissue Act and data protection regulations.

What are your choices about how your information is used?

You can stop being part of the study at any time, without giving a reason, but we will keep information about you that we already have.

You have the right to ask us to access, remove, change or delete data we hold about you for the purposes of the study. You can also object to our processing of your data. We might not always be able to do this if it means we cannot use your data to do the research. If so, we will tell you why we cannot do this.

Where can you find out more about how your information is used?

You can find out more about how we use your information

- our leaflet available from **www.hra.nhs.uk/patientdataandresearch**
- by asking one of the research team
- by sending an email to our **Data Protection Officer, Heidi Doubtfire-Lynn, uhsussex.dataprotectionofficer@nhs.net.**
- by ringing us on [**phone number**].

Who do I contact if I need to speak to someone?

In case of any question about the study, you can contact the chief investigator: Dr John Silberbauer, or the principal investigator Dr Rebecca Godfrey or the Research Nurse ***: 01273 6969455 ext ***

The Hospital Patient Advice and Liaison Service (PALS) can also be contacted on 01273 664511

If your call is urgent and out of office hours contact the Royal Sussex County Hospital switchboard on 01273 696955 and ask for the Cardiology Registrar on Call.

If you decide to take part and have any feedback about your experience we would welcome hearing from you. Please email (……) with any thoughts.

We would like to thank you for taking the time to read this information sheet.