UNIVERSITY OF CALGARY
CONSENT TO PARTICIPATE IN RESEARCH

Title: **LEFT Bundle Pacing vs Standard RV Pacing for Heart Failure (LEFT-HF)**

Sponsor: The Research Institute of the McGill University Health Centre
Funder: Heart and Stroke Foundation Canadian Institutes of Health Research: Grant to Sponsor

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INTRODUCTION

Dr. Derek Chew and associates from the Cumming School of Medicine at the University of Calgary are conducting a research study. We are inviting you to take part in this research study because you have been diagnosed with electrical heart block, also known as AV block. Heart block means that the electrical signals that control the top and bottom of your heart are no longer communicating with each other. This causes your heart to beat either too slowly or too inefficiently and will prevent the heart to pump blood effectively to the rest of your body. Your doctor has recommended a pacemaker implantation to treat this condition.

Before you agree to take part in this study and sign this Informed consent form, please take the time to read, understand and carefully examine the following information. You may also want to discuss this study with your family doctor, a family member or a close friend.

This form may contain words that you do not understand. We invite you to speak to the researcher responsible for this study (the "study doctor") or to other members of the research team and ask them to explain to you any word or information that is unclear to you before you sign this form.

Normally, electrical signals travel from the upper chambers of your heart (atria) to the lower chambers (ventricles). The AV node is a cluster of cells that connect the electrical activity, like a bridge, from the top chambers of your heart to the bottom chambers. If you have heart block, the electrical signal does not travel through the AV node to the ventricles. The delay or block can occur on the pathway that sends electrical impulses either to the left or the right side of the bottom chambers of your heart. The result is that your heart cannot pump blood through its chambers and out to the body as a normal heart would.

Pacemakers are life-saving devices that assist the heart to pump in an organized manner. The pacemaker sends small electrical impulses to the heart muscle to maintain a suitable heart rate or to stimulate the lower chambers of the heart (ventricles). A pacemaker has two parts. One part, called the pulse *generator* located in front of the shoulder once implanted, contains the battery and the electronics that control your heartbeat. The other part is one or more *leads* to send electrical signals to your heart. Leads are small wires that run from the pulse generator to your heart.

When placing a pacemaker, the doctor makes a small incision near the shoulder. He/she guides a small wire(s) through the incision leading into a vein near the collarbone. Then he/she leads the wire(s) through the vein to the heart. An X-ray machine is helping guide the doctor through the process. Using the wire, the doctor attaches an electrode to the heart's right ventricle (lower chamber of the heart). A second lead is then attached to the heart's right atrium (upper chamber of the heart). The other end of the wire(s) is attached to a pulse generator. This contains the battery and electrical circuits.

Patients who have heart block become dependent on the pacemaker to deliver electrical signals. If a patient is completely dependent on the electrical signals delivered on the bottom chamber, they are at risk of developing a weakening of their heart muscle. This can occur in up to 20-25% of patients. This weakening of the heart is called 'pacing-induced cardiomyopathy' and is associated with the development of heart failure. Heart failure is a weakening of the heart muscle which causes water on the lungs, increased emergency department visits, hospitalizations and even higher mortality. Symptoms of heart failure include shortness of breath, fatigue, weakness, and a decreased ability to perform regular activities. If pacing-induced cardiomyopathy occurs during follow-up, patients will need a second procedure to add a wire to the left side of the heart ("cardiac resynchronization therapy") to re-organize the electrical impulses and improve the heart function.

Left bundle branch pacing (LBBP) is a novel approach to place a pacemaker that attempts to prevent the risk of pacing-induced cardiomyopathy and prevent heart failure. The pacemaker generator (battery) is identical to the standard pacemaker. The only difference is the location of where the ventricular (lower chamber) wire is placed. All wires are Health Canada approved and have been in use for many years. Highly specialized physicians (electrophysiologists) are currently evaluating this technique, however clear evidence that there is a benefit is still needed.

WHY IS THIS STUDY BEING DONE?

The purpose of this study is to compare two pacemaker lead placement strategies:

A) Standard right ventricular pacing
B) Left bundle branch pacing (LBBP)

HOW MANY PEOPLE WILL TAKE PART IN THIS STUDY, HOW LONG WILL I PARTICIPATE?

For this research study, approximately 1300 patients will be recruited. About 50 participants will come from the University of Calgary site.

WHAT WILL HAPPEN IF I TAKE PART IN THIS STUDY?

Your participation in this research project is anticipated to last up to 5 years with a minimum follow-up of 36 months and will include 5 visits. Each study visit will take approximately 1 hour. The timeframe for these visits is the same for all patients after device implant. Additional data will be collected from you for the study.

You will be assigned to one of the groups in a 1:1 ratio, that is, you have a 50% chance of being in each group. This process is done randomly, like flipping a coin.

During your participation in this research study, the study doctor or a member of the research team will conduct the following tests and procedures:

- Review of your medical chart and medications
- Review of unexpected events
- ECG
- Echocardiograms; an ultrasound of your heart (4 times)
- Device Interrogation
- Blood sample at your local lab (3 times)
- Questionnaires regarding your health and quality of life (3 times)

WHAT WILL HAPPEN WHEN I AM FINISHED FOLLOW-UP?

When you have completed the study, you will be followed in the Device clinic as per standard of care every 6 months.

WHAT ARE THE RISKS?

Complications related to pacemaker surgery for both control group and experimental group are uncommon These include:

- Infection near the site in the heart where the device is implanted <1%
- Swelling
- Bruising or bleeding at the pacemaker site 1.2% or less
- Blood clots near the pacemaker site 0.2%
- Damage to blood vessels or nerves near the pacemaker.
- Collapsed lung (pneumothorax) <0.5%
- Movement (shifting) of the device or leads <2%
- Perforation of the heart during placement of the leads 0.3%

The pacemaker devices and leads (wires) used in this study are approved by federal agencies worldwide and are available to implant.

The pacemaker implantation procedure for both LBBP and control (standard pacemaker) groups are nearly identical. The difference is only where the bottom wire is placed. The additional risks associated with LBBP may include a longer time of procedure (up to 30 minutes more), and perforation of the wall between the right and left lower chambers (interventricular septum). In all cases of perforation, the wire is withdrawn and placed in a different location. Only a highly experienced electrophysiologist will be performing the procedure.
We may not know all of the discomforts, side effects and other possible risks associated with implantation of a left bundle pacing lead (LBBP).

Therefore, if you have noticed side effects, whatever they may be, during this research study, you must tell the study doctor immediately, regardless of whether you think these effects are related to the study procedure. Even once your participation in the study is over, do not hesitate to contact the study doctor if you experience a side effect that may be linked to the procedure.

The study doctor and members of his or her team will answer any questions that you may have regarding the risks, discomforts and side effect associated with this study. Also, at each visit, the study doctor and members of his or her team will ask you questions about any side effects you may have experienced.

Blood draw: The risks associated with taking blood samples include mild pain, dizziness, fainting, bruising, bleeding, and in rare cases, blood clots and infection.

Electrocardiogram (ECG): Your skin may react to the adhesive patches that attach the sensors (electrodes) to your chest during ECG. This skin irritation usually disappears when the patches are removed.

Pacemaker interrogation: You may feel your heart beating during the pacemaker interrogation and testing (routine testing).

Echocardiogram: You may feel momentary soreness during imaging from the ultrasound probe on your chest.

You should inform your study doctor or a member of his/her team as soon as possible if you have any unusual symptoms as it could affect your health. You can contact them at the phone number listed. In case of emergency (evening, night, weekend and holidays), report any side effects or injury related to the device, you must go to an emergency room as needed.

ARE THERE ANY REPRODUCTIVE RISKS?

Participation in this study may include risks, known or unknown, for pregnant women, unborn children or to children of breastfeeding women. Consequently, pregnant or breastfeeding women cannot take part in this project.

If you are a woman of childbearing potential, you must undergo a pregnancy test before your pacemaker implant and/or start participating in the study.

ARE THERE ANY POTENTIAL BENEFITS IF I PARTICIPATE?

You may or may not personally benefit from your participation in this research project. However, we hope that the study results will contribute to the advancement of scientific knowledge in this field and help us find better treatments for patients.

WHAT OTHER CHOICES DO I HAVE IF I CHOOSE NOT TO PARTICIPATE?

Your participation in this study is voluntary. You can choose not to participate in this study. If you choose not to participate, you will still have the standard pacemaker implanted as planned to treat your heart block. Your study doctor will discuss these options with you.

CAN I STOP BEING IN THE STUDY?

Your participation in this research study is voluntary. Therefore, you may refuse to participate. You may also withdraw at any time, without giving any reasons, by informing the doctor in charge of this research or a member of the research team.

Your decision not to participate in the study, or to withdraw from it, will have no impact on the quality of care and services to which you are otherwise entitled, or on your relationship with the teams providing them.

However, before you withdraw from the study, we suggest that you inform the research team which will inform the appropriate clinical personal for your pacemaker clinical follow-up visits.

Any new findings acquired during the course of the study that could influence your decision to continue your participation will be shared with you quickly.

CAN THE RESEARCHERS REMOVE ME FROM THIS STUDY?

The doctor in charge of this research study, the Research Ethics Board, the funding agency, or the sponsor may put an end to your participation without your consent. This may happen if new findings or information indicate that participation in this research study is no longer in your best interest, if you do not follow study instructions, or if there are administrative reasons to terminate the study.

WHAT IF RESEARCHERS DISCOVER SOMETHING ABOUT ME?

During the study, the researchers could learn something about you that they didn't expect. For example, the researchers may [e.g. find out that you have another medical condition.] The researchers will consult with medical experts as needed to evaluate the findings and will then share these results with you. You will be helped with arranging appropriate follow up and care.

I consent for the researchers to share findings with me:

❑ YES ❑ NO

WITHDRAWAL OF STUDY DATA

If you withdraw or are withdrawn from the study, no further data will be collected. However, the information already collected for the study (ECG, Echo imaging, pacemaker interrogation report) will be stored, analyzed and used to ensure the integrity of the study, as described in this document.

We may ask to follow you by telephone or look at your medical records to find out information, however you are free to decline this as well.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?

You will not be paid for taking part in this study. Parking costs for study specific visits to the Foothills hospital will be subsidized or reimbursed.

WILL INFORMATION ABOUT ME AND MY PARTICIPATION BE KEPT CONFIDENTIAL?

The researchers will do their best to make sure that your private information is kept confidential, unless required by law. Information about you will be handled as confidentially as possible, but there is always the potential for an unintended breach of privacy. The research team will handle data according to the Data Management Plan as outlined below:

During your participation in this study, the doctor in charge of the study and the research team will collect in a study file the information about you needed to meet the scientific objectives of the study. The study file may include information from your medical charts including your identity, such as your name, gender, date of birth, ethnicity, past and present health status, lifestyle, and the results of all tests, exams, and procedures that will be performed. Some of this data will be collected from Connect Care, the electronical medical record system used by Alberta Health Services.

By signing this consent form, you understand that the research team will have access to your individually identifying health information for research purposes. In cases where the study involves an intervention such as a research-related medication, device, or other therapy, or the project includes research-specific lab tests and/or imaging, your signed consent will also be included in your electronic medical record(s), and healthcare staff will know that you are in a research study.

All study data collected during this research study (including personal information) will remain confidential to the extent provided by law. Your study data will be coded (with a number) so that it no longer contains your name and address; however, some dates associated with your hospitalization or medical history could identify you. Only the research team members will be able to link your coded study data to you. The coded study data will be sent to the Sponsor. This coded study data will be kept by the Sponsor in a secure manner.

However, the Sponsor and any partners are required to respect confidentiality rules equivalent to those in effect in Canada.

The study data may be published or shared at scientific meetings; however, it will not be possible to personally identify you.

For monitoring, control, safety, security, and approval of the LBBP procedure by regulatory agencies, your study file as well as your medical charts may be examined by a person mandated by Canadian or international regulatory authorities, as well as by authorized representatives of the study sponsor, the institution, or the Research Ethics Board. All these individuals and organizations will have access to your personal data, but they adhere to a confidentiality policy.

You have the right to consult your study file to verify the information gathered, and to have it corrected if necessary.

HOW LONG WILL INFORMATION FROM THE STUDY BE KEPT?

Study data will be stored for by the study team until all data has been collected and the database locked. Study records will then be stored for 5 years as per university policies.

IF I SUFFER A RESEARCH-RELATED INJURY, WILL I BE COMPENSATED?

In the event that you suffer injury as a result of participating in this research, appropriate medical treatment will be provided. No compensation will be provided to you by, the Sponsor, the University of Calgary, Alberta Health Services or the Researchers. The study doctor and the University of Calgary still have their legal and professional responsibilities. You still have all your legal rights. Nothing said in this consent form alters your right to seek damages.

The sponsor of this clinical trial has taken out insurance that covers its civil responsibility for any possible harm and injury that could be inflicted, as well as the study doctors taking part in the study.

WHO CAN I CONTACT IF I HAVE QUESTIONS ABOUT THIS STUDY?

The Research Team:

You may contact Dr Chew at 403-220-5500 or 403-210-6047 with any questions or concerns about the research or your participation in this study.

Conjoint Health Research Ethics Board (CHREB):

If you have any questions concerning your rights as a possible participant in this research, please contact the Chair, Conjoint Health Research Ethics Board, University of Calgary at 403-220-7990.

Public Information about this Study:

ClinicalTrials.gov is a website that provides information about federally and privately supported clinical trials. A description of this clinical trial will be available on http://www.ClinicalTrials.gov. This website will not include information that can identify you. At most, the website will include a summary of the results. You can search this website at any time. This project's registration number is NCT05015660.

HOW CAN I FIND OUT ABOUT THE STUDY RESULTS?

After the completion of the study, you can receive information on the results obtained in the study upon request. Results will also be posted on the above clinicaltrials.gov website.

The results of the research derived in part from your participation in the study may lead to the development of new commercial products. However, you will not be entitled to any financial gain.

WHAT ARE MY RIGHTS/RESPONSIBILITIES IF I TAKE PART IN THIS STUDY?

Taking part in this study is your choice. You can choose whether or not you want to participate. Whatever decision you make, there will be no penalty to you.

- You have a right to have all of your questions answered before deciding whether to take part.
- Your decision will not affect the standard medical care you receive.
- If you decide to take part, you may leave the study at any time.

SIGNATURES

By signing this consent form, please ensure that the following statements are correct and accurate.

- All of my questions have been answered,
- I understand the information in this informed consent form.
- I allow access to medical records and transfer and related personal health information as explained in this consent form.
- I do not give up any legal rights by signing this consent form,
- I understand that my family doctor/health care provider will be informed of study participation.
- I agree to take part in this study.

SIGNATURE OF STUDY PARTICIPANT

_____
Name of Participant

_____
Signature of Participant Date

SIGNATURE OF THE PERSON OBTAINING CONSENT (Investigator or Delegate)

_____
Name of Person Obtaining Consent Contact Number

_____
Signature of Person obtaining consent Date

SIGNATURE OF THE WITNESS

_____
Name of Witness

_____
Signature of Witness Date

The University of Calgary Conjoint Health Research Ethics Board has approved this research study.
A signed copy of this consent form has been given to you to keep for your records and reference.