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CONSENT FOR RESEARCH
Penn State College of Medicine
The Milton S. Hershey Medical Center

Title of Project: A volunteer study to determine the anatomical distribution of injectate, the extent of sensory block, and the pharmacokinetics of Ropivacaine following Erector Spinae Plane (ESP) blocks.

Principal Investigator: Sanjib Adhikary

Address: 500 University Drive, Hershey, PA 17033

Telephone Numbers: Weekdays: 8:00 a.m. to 5:00 p.m. (717) 531-6140.
After hours call (717) 531-8521. Ask for the acute pain doctor on 24-hour call.

Subject's Printed Name: _____

We are asking you to be in a research study.

Whether or not you take part is up to you. You can choose not to take part. You can agree to take part and later change your mind. Your decision will not be held against you.

This form gives you information about the research. Please ask questions about anything that is unclear to you and take your time to make your choice.

1. **Why is this research study being done?**

You are being offered the opportunity to take part in this research because you are a healthy volunteer. This research is being done to evaluate the effects of a new nerve block procedure where local anesthetics or numbing medicine will be injected under the muscles in your back. These muscles are present on top of bones covering other structures of your body. The injections are supposed to be safer, as the injection site is not near any major vessels or spinal cord. While this block seems to work in patients in pain, where and how the local anesthetic spreads in the back has not been determined. We are doing this study to determine where and how far the injected fluid spreads after it is injected. Approximately twelve people are needed to follow the study protocol through to completion, and will take part in this research study at the Hershey Medical Center, however, up to 35 subjects may be enrolled.

2. What will happen in this research study?

This study has two groups. One group will receive the ultrasound-guided erector spinae plane (ESP) block using ropivacaine hydrochloride (a local anesthetic) with epinephrine added and the other group will receive the ultrasound-guided ESP block using ropivacaine without the addition of epinephrine. An ultrasound will be used to look at your back while performing this procedure, so the exact location of the needle can be confirmed while the injection is being done. The area where the block injection will be done will be made numb using local anesthetics, and then the procedural needle will be inserted. You should feel minimal discomfort during the injection. During the study time, you will be also asked to donate 3 ml of blood (about 2/3 of a teaspoon) 7 times, through an IV line already placed at the

beginning of the study period. Your oxygenation, blood pressure and heart rate will be monitored throughout the study period in regular intervals to make sure that you are safe during the study period.

Pre- Procedure Visit

- After you consent to be in the study, 1 ml of blood (approx. 1/5 of a teaspoon) will be drawn to obtain a baseline creatinine level to measure kidney function.
- You will be instructed to refrain from eating any solids for at least 6 hours prior to reporting to the hospital for the study, with clear liquid permitted until 2 hours before the procedure.

Day of block procedure:

- If you are female, you will need to have a pregnancy test done using a urine sample and a standardized pregnancy testing kit. This will be done at the researcher's expense. If found to be pregnant, you will be excluded from the study.
- Neither you nor the study team members will know to which study group you have been assigned, but the study team will be able to get this information quickly if it is needed to ensure your safety.
- You will be randomly assigned to receive one of the two study treatments. This means whichever study treatment you receive will be determined purely by chance. You will have an equal chance of being assigned to either group.
- You will report to the Clinical Research Center (CRC) of Milton S. Hershey hospital.
- You will be asked if you followed the fasting instructions
- An intravenous line will be placed to allow the collection of the blood samples, and the nurse will begin the continuous monitoring of your vital signs (ECG, non-invasive blood
- pressure every 5 minutes, and pulse oximetry). The study doctor will use a computer-generated randomization list to determine on which side to place the block.
- 3ml of blood (approx. 2/3 of a teaspoon) will be taken from the IV line at the following 7 time points: prior to the block procedure and at 20, 40, 60, 90, 120 and 240 minutes following the completion of the block procedure. The samples will be processed and analyzed for ropivacaine level at a later date. The blood samples will be processed and analyzed for ropivacaine level using HPLC at the genomic laboratory of the Department of Anesthesia, Hershey Medical center. The results of the ropivacaine level measurement will be used for analysis of the results for the study. You will not receive the results of these tests. However, if you want to know specifically the results of these tests, that will be provided to you. The additional blood from samples, if any, will be destroyed after the results are obtained.
- You will be placed in a sitting position for the procedure and the skin of your upper back will be disinfected. A low-frequency curvilinear ultrasound transducer (Sonosite, Bethesda, USA) will be used to identify the position for the block. The area where the block will be placed will be anesthetized with lidocaine for your comfort. A needle will then be inserted in the muscles in your back. A small amount (1 ml or 1/5 teaspoon) of a salt solution will be injected to confirm the correct needle tip placement. Injection of the assigned study treatment will then take place.
- After the completion of the ESP block, you can sit, stand or lie down for the remainder of the study. Continuous monitoring and recording of your vital signs will take place for 6 hours.
- You will also undergo sensory assessments for loss of sensation at 20, 60, 120, 240, and 360 minutes after the injection of active drug. These assessments consist of:

    - Rubbing ethanol on the skin
    - A pinprick using a blunt-tipped needle

The assessor will make a mark on your body using a water-soluble marker to record the assessment area and will also photograph the site.

- Once the final sensory assessment has been completed (360 minutes following block), you will remain for an additional 30 minutes of observation. The intravenous cannula will be removed and you will then be discharged to return home. You should not drive for 24 h after receiving the block, and you will need to have someone to drive you home after the procedure.
- A member of the study team will contact you approximately 24hrs and 48 hours after the procedure to ensure that you have not experienced any side effects.

What are my responsibilities if I take part in this research?

If you take part in this research, your major responsibilities will include:

- Pregnancy test (if female)
- Having IV placed
- 7 blood draws (taken from the IV)
- Undergo ESP block procedure of anesthetic Ropivacaine (with or without epinephrine)
- Vital sign monitoring for 6 hours
- 10 sensory assessments
- Participate in 2 follow up phone calls, on post-op days 1 and 2, to discuss how you are feeling

3. What are the risks and possible discomforts from being in this research study?

The risks to you include:

Intravenous access through venipuncture: Any time we insert a needle in your body there is a minimal risk for bruise, infection or some amount of blood getting into different unintended tissues/parts of your body under the skin. These can be expected due to placement of the IV.

Regional Anesthesia - Possible complications and discomforts from regional anesthesia, which allows a procedure to be done on a region of the body without you being unconscious, include:

- Common – local/pain and/or discomfort, infection, and/ or headache
- Any time we insert a needle in your body there is a minimal risk for bruise or infection as well
- Uncommon – shock or extreme fall in blood pressure, convulsions and/or seizures
- Rare – nerve damage resulting in numbness, tingling and/or paralysis which may be temporary or permanent. Respiratory arrest, cardiac arrest, and/or allergic reaction to drugs. Death.

Ropivacaine Hydrochloride: Possible complications and discomforts from ropivacaine hydrochloride include:

- Incidence 5% or greater - Nausea, vomiting, fever, headache, back pain, low blood pressure, slow heartbeat, pain and anemia (decreased red blood cell count).
- Incidence 1% to 5% - High blood pressure, urinary retention, urinary tract infection, dizziness, shaking or exaggerated shivering, rapid heart rate, anxiety, production of abnormally small amounts of urine, reduced sense of touch or sensation, chest pain, itching, cramps, difficulty breathing, deficiency of potassium in the bloodstream.

Epinephrine: Side effects of epinephrine include: Fast heartbeat, sweating, headache, weakness, shakiness, paleness, dizziness, palpitations, nausea/vomiting, difficulty breathing, nervousness/anxiety, and increased blood glucose levels.

Procedural risks:

- It will involve the similar procedural risk as other peripheral regional anesthesia procedures. This procedure has not been studied very extensively so the literature of its safety is not known completely. However, there are a number of case reports and case series that have been published in the last year, where ESP has been shown to be safe in different conditions of use.[4-6] Here at the Penn State Hershey Medical Center, more than two hundred of these blocks have been performed for different procedures, without any complications or side effects.
- There is a rare risk of pneumothorax, which is getting air or gas in the cavity between the lungs and the chest wall, causing collapse of the lung.
- Venipuncture: Any time we insert a needle in your body there is a minimal risk for bruise, infection or extravasation of blood.

Risk of loss of confidentiality: There is a risk of loss of confidentiality if your information or your identity is obtained by someone other than the investigators, but precautions will be taken to prevent this from happening. The confidentiality of your electronic data created by you or by the researchers will be maintained to the degree permitted by the technology used. Absolute confidentiality cannot be guaranteed.

4. What are the possible benefits from being in this research study?

4a. What are the possible benefits to me?

You will not experience any direct benefit from this research.

4b. What are the possible benefits to others?

The results of this research may guide the future use of ESP Blocks by providing providers with a better understanding of the technique and its associated effects, and may help improve the practice of ESP blocks for patients in the future.

5. What other options are available instead of being in this research study?

You may choose not to be in this research study.

6. How long will I take part in this research study?

If you agree to take part, it will take you about three days to complete this research study. You will be asked to participate in two follow-up phone calls to discuss how you are feeling.

7. How will you protect my privacy and confidentiality if I decide to take part in this research study?

7a. what happens to the information collected for the research?

Efforts will be made to limit the use and sharing of your personal research information. In our research files at The Milton S. Hershey Medical Center (HMC) and Penn State College of Medicine (PSU) we will include these identifiers: your name, address, phone number, email address, date of birth, social security number, medical record number and a code number.

- A list that matches your name with your code number will be kept in a locked file in Dr. Adhikary's office.
- Your research records will be labeled with: your code number and your initials and will be kept in a safe area in Dr. Adhikary's research office. Your research samples will be labeled with: a code number and your initials and will be stored in the Perioperative Genomics Laboratory C2848. The linking list to the code number will be stored in the locked office of the PI. The data will be stored in the REDCap database accessed only by members of the research team

- A copy of this signed consent form will be included in your HMC medical record. This means that other HMC healthcare providers will know you are in this study.
- Results of some of the research-related tests, including but not limited to, creatinine level found in the pre-op screening will be kept in your HMC medical record.

In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

7b. How will my identifiable health information be used?
If you give your consent, health information that can be traced to you will be collected for this research study. In general, under federal law, health information is private. However, there are exceptions to this rule, and you should know who may be able to see, use, and share your health information for research and why they may need to do so. We will use and disclose your information only as described in this form and in the HMC Privacy Notice.

The research team may use the following health information:

- Past, present, and future medical records
- New health information from tests, procedures, visits, interviews, or forms filled out as part of this research study.

The following people/groups may see, use, and share your identifiable health information:

- HMC/PSU research staff involved in this study
- The HMC/PSU Institutional Review Board (IRB), a group of people who review the research study to protect subjects' rights and welfare
- The HMC/PSU Human Subjects Protection Office
- The HMC/PSU Research Quality Assurance Office
- Non-research staff within HMC/PSU who need this information to do their jobs (such as for treatment, payment (billing), or health care operations)
- Federal and state agencies (such as the U.S. Food and Drug Administration, the Office for Human Research Protections, the Department of Health and Human Services, the National Institutes of Health, and other U.S. or foreign government bodies that oversee or review research)
- The HMC/PSU pharmacy
- A group that oversees the data (study information) and safety of this research
- Organizations that provide independent accreditation and oversight of hospitals and research
- Public health and safety authorities (for example, if we learn information that could mean harm to you or others, we may need to report this, as required by law)
- People or groups that we hire to do work for us, such as data storage companies, insurers, and lawyers

These groups may also review and/or copy your original PSU/HMC records while looking at the results of the research study. It is possible that some of the other people/groups who receive your health information may not be required by Federal privacy laws to protect your information. We share your information only when we must, and we ask anyone who receives it from us to protect your privacy.

Because research is an ongoing process, your permission for the use, storage and sharing of your health information will continue indefinitely.

Your privacy rights:

- You have the right to refuse to sign this form that allows us to use and share your health information for research; however, if you don't sign it, you will not be able to take part in this research study.
- You have the right to withdraw your permission for us to use or share your health information for this research study. If you want to withdraw your permission, you must notify the person in charge of this research study in writing using the address on the front of this form. Once permission is withdrawn, you cannot continue to take part in the study.
- If you withdraw your permission, we will stop collecting health information about you for this study; we may continue to use and share your health information that we already have if it is necessary for safety and scientific soundness of the research study; and we will not be able to take back information that has already been used or shared with others.
- You have the right to see and get a copy of your health information that is used or shared for treatment or for payment. However, you may not be allowed to see or copy certain health information that is a part of this research study. This is only for the period of the study. You will be allowed to see that information when the entire research study is complete.

8. What are the costs of taking part in this research study?

8a. What will I have to pay for if I take part in this research study?

There is no cost to you for taking part in this study.

The following costs will be covered by the research team at Penn State Health:

- The ESP block and all charges will be provided by Penn State Health at no cost to you
- You and/or your insurance company will not be charged for the cost of any tests or procedures that are required as part of the research.
- The research-related tests and procedures that will be provided at no cost to you include*:* pregnancy test (if necessary), creatinine levels, IV's, ESP Block procedure and medications, ultrasound, vital sign monitoring, and sensory assessments.

For costs of medical services for care you would receive even if you were not in this research study:

- You and/or your insurance company will be responsible for the cost of routine medications, tests and procedures that you would receive even if you were not in this research.
- You and/or your insurance company will be billed for the costs of these routine tests and procedures in the usual manner.

If you have any questions about costs and insurance, ask the research study doctor or a member of the research team.

8b. What happens if I am injured as a result of taking part in this research study?

It is possible that you could develop complications or injuries as a result of being in this research study. If you experience a side effect or injury and emergency medical treatment is required, seek treatment immediately at any medical facility. If you experience a side effect or injury and you believe that emergency treatment is not necessary, you should contact the principal investigator listed on the first page of this consent form as soon as possible and the principal investigator will arrange for medical treatment.

<u>HMC/PSU compensation for injury</u>

- There are no plans for HMC/PSU to provide financial compensation or free medical treatment for research-related injury.
- If an injury occurs, medical treatment is available at the usual charge.
- Costs will be charged to your insurance carrier or to you.
- Some insurance companies may not cover costs associated with research injuries.
- If these costs are not covered by your insurance, they will be your responsibility.

When you sign this form you are not giving up any legal right to seek compensation for injury.

9. **Will I be paid to take part in this research study?**
You will receive $300 for your participation in this research study. If you do not complete the study for any reason, you will be paid for the visits you have completed. The payment will be provided by Greenphire Clincard.

This reimbursement will be issued by an external company called Greenphire, which will issue your reimbursement. You will be issued a ClinCard, which is a debit card that your funds are loaded onto and can be used at your discretion. The research team will give Greenphire some personal information about you, as described below. Greenphire will only use your personal information to process this reimbursement and will not share it with anyone for any other purpose. Details of the debit card system are explained on an additional sheet. If you lose the card, you may be responsible for the replacement fee. When a visit is completed, funds will be approved and loaded onto your card. The funds will be available within 2-3 business days. In order to assign a ClinCard to you and load funds onto the ClinCard, Greenphire will need your Study/Subject ID, Name, Address, and date of birth. You will have the option to receive updates related to payment alerts via text message and/or email message. Standard text messaging rates will apply. In order to send you messages Greenphire will need your Mobile Phone Number and/or E-mail Address.

Payment received as compensation for participation in research is considered taxable income. If payments from Greenphire exceed $600 in any one calendar year, you will be required to provide your social security number so that Greenphire can file a 1099 (Miscellaneous Income) form on behalf of Penn State. Payment totals are calculated across all research participation at Penn State if you participate in multiple studies.

It is possible that your research information and/or specimens may be used to develop products or tests that could be patented and licensed. There are no plans to provide financial compensation to you should this occur.

10. **Who is paying for this research study?**

The investigators are receiving funds from the department of Anesthesiology and Perioperative Medicine of the Hershey Medical Center to support this research study.

11. What are my rights if I take part in this research study?

Taking part in this research study is voluntary.

- You do not have to be in this research.
- If you choose to be in this research, you have the right to stop at any time.

- If you decide not to be in this research or if you decide to stop at a later date, there will be no penalty or loss of benefits to which you are entitled.

If you stop being in the research, already collected data may not be removed from the study database. If you withdraw completely from the research study, no further information will be collected and your participation will end. You may discontinue taking part at any time without penalty or loss of benefits to which you are otherwise entitled.

Your research doctor may take you out of the research study without your permission.

- Some possible reasons for this are: If you fall sick or continuation of research would be harmful to you for some reason, if you experience serious side effects, you did not follow the instructions of the study doctor, etc.
- Also, the sponsor of the research may end the research study early.
- If your participation ends early, you may be asked to visit the research doctor for a final visit.

During the course of the research you will be provided with any new information that may affect your health, welfare or your decision to continue participating in this research.

12. If I have questions or concerns about this research study, whom should I call?

Please call the head of the research study (principal investigator), Sanjib Adhikary at 717-531-6140 or the acute pain doctor on 24-hour call at 717-531-8521 if you:

- Have questions, complaints or concerns about the research.
- Believe you may have been harmed by being in the research study.

You may also contact the research protection advocate in the HMC Human Subjects Protection Office (HSPO) at 717-531-5687 if you:

- Have questions regarding your rights as a person in a research study.
- Have concerns or general questions about the research.
- Have questions about your privacy and the use of your personal health information.
- You may also call this number if you cannot reach the research team or wish to offer input or to talk to someone else about any concerns related to the research.

You may visit the Penn State College of Medicine's Clinical Research web site at http://med.psu.edu/clinical-research/faqs for:

- Information about your rights when you are in a research study;
- Information about the Institutional Review Board (IRB), a group of people who review the research to protect your rights; and
- Links to the federal regulations and information about the protection of people who are in research studies. If you do not have access to the internet, copies of these federal regulations are available by calling the HSPO at (717) 531-5687.

A description of this clinical trial will be available on http://www.ClinicalTrials.gov, as required by U.S. Law. This Web site will not include information that can identify you. At most, the Web site will include a summary of the results. You can search this Web site at any time.

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INFORMED CONSENT AND AUTHORIZATION TO TAKE PART IN RESEARCH

Signature of Person Obtaining Informed Consent

Your signature below means that you have explained the research to the subject or subject representative and have answered any questions he/she has about the research.

_____	_____	_____	_____
Signature of person who explained this research	Date	Time	Printed Name

(Only approved investigators for this research may explain the research and obtain informed consent.)

Signature of Person Giving Informed Consent and Authorization

Before making the decision about being in this research you should have:

- Discussed this research study with an investigator,
- Read the information in this form, and
- Had the opportunity to ask any questions you may have.

Your signature below means that you have received this information, have asked the questions you currently have about the research and those questions have been answered. You will receive a copy of the signed and dated form to keep for future reference.

Signature of Subject

By signing this consent form, you indicate that you voluntarily choose to be in this research and agree to allow your information to be used and shared as described above.

_____	_____	_____	_____
Signature of Subject	Date	Time	Printed Name