Informed Consent Form cover page

Official title: A Comparison of Epidural and Intravenous Patient Control Analgesia Following Lumbar Spinal Fusion Surgery: A Prospective Randomized Study

NCT number: NCT03115151

IRB Approved date: 03-08-2019

The University of Texas Southwestern Medical Center
Parkland Health & Hospital System
Children's Medical Center
Retina Foundation of the Southwest
Texas Scottish Rite Hospital for Children
Texas Health Presbyterian Hospital Dallas

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research:	**A Comparison of Epidural and Intravenous Patient-Controlled Analgesia Following Lumbar Spinal Fusion Surgery: A Prospective Randomized Study**
Funding Agency/Sponsor:	Department of Anesthesiology and Pain Management, and Department of Neurosurgery UT Southwestern Medical Center
Study Doctors:	Enas Kandil, M.D., Stephanie Jones M.D., Carlos A. Bagley, M.D. David McDonagh M.D.

You may call these study doctors or research personnel during regular office hours at (214) 648-0593. At other times, you may call them at 214-786-4248 and ask to speak with someone about the study.

Instructions:
Please read this consent form carefully and take your time making a decision about whether to participate. As the researchers discuss this consent form with you, please ask him/her to explain any words or information that you do not clearly understand. The purpose of the study, risks, inconveniences, discomforts, and other important information about the study are listed below. If you decide to participate, you will be given a copy of this form to keep.

Why is this study being done?
This study is being done to compare quality of pain relief of two routes of pain medication administration through your vein (intravenous patient-controlled analgesia) or by your back (Lumbar Epidural Analgesia) after spine surgery.

Why is this considered research?
This is a research study because pain treatment following spine surgery is difficult to

manage and treating the pain with intravenous (through vein) opioid analgesics often has many side effects including nausea, vomiting, difficulty in urination, pruritus (itching), drowsiness, constipation or difficulty breathing. Pain medication can be given through the vein or by way of an epidural. The researchers are interested in learning which route is more effective for treating pain after lumbar spinal fusion surgery.

The following definitions may help you understand this study:

- **Randomizatio**n means you will be placed by chance (like a flip of a coin) in one of the two study groups.
- **Researche**r means the study doctor or research personnel at the University of Texas Southwestern Medical Center at Dallas and its affiliated hospitals.
- **Patient-Controlled Analgesia (PCA):** A PCA mean pain medication is delivered using a **pump** which is connected directly to a patient's vein or to the epidural space and contains a syringe of pain medication as prescribed by a doctor.
- **Patient-Controlled Analgesia Pump** is a computerized smart pump used to deliver a small, constant flow of pain medication. You can also give pain medication as needed by pushing a button connected to the pump.

Why am I being asked to take part in this research study?
You are being asked to take part in this study because you are having a lumbar spinal fusion surgery.

Do I have to take part in this research study?
No. You have the right to choose whether you want to take part in this research study. If you decide to participate and later change your mind, you are free to stop participation at any time. If you decide not to take part in this research study it will not change your legal rights or the quality of health care that you receive at this center.

How many people will take part in this study?
About 58 people will take part in this study at UT Southwestern Zale Lipshy University Hospital.

What is involved in the study?
If you volunteer to take part in this research study, you will be asked to sign this consent form and will have the following tests and procedures.

Screening Procedures
To help decide if you qualify to be in this study, the researchers may ask you questions about your health, including medications you take and any surgical procedures you have had.

Group Assignment
Once the researchers determine you can take part in this study, you will be assigned randomly (like a flip of a coin) to receive either epidural analgesia or intravenous

analgesia. Both epidural analgesia and intravenous analgesia are considered as standard of care for spine surgery.

Both routes of pain medication administration are considered standard of care, one of which you will receive regardless of study participation. The placement of the epidural catheter will be performed by the surgeon at the end of your planned lumbar fusion surgery, while intravenous analgesia will be performed by an anesthesiologist of the Acute Pain Service (APS) immediately following surgery in the Post Anesthesia Care Unit (PACU). The APS will manage intravenous (IV) and the epidural analgesia following surgery.

In addition, you will also receive regular oral pain medications regardless of study participation. The group you will be assigned to will be decided randomly.

Procedures and Evaluations during the Research
If you agree to be in this study, you will receive your pain medication after surgery either via epidural catheter or your vein.

Intravenous Patient-Controlled Analgesia will be performed by anesthesiologists with the Acute Pain Service using automatic drug infusion pump. A morphine-like pain killer (hydromorphone) will be given through your vein with this infusion pump. Hydromorphone will be given very slowly and continuously. If you have pain, you can also receive hydromorphone by pushing a button, which is connected to the pump.

Epidural Patient-Controlled Analgesia: The epidural space is the area surrounding the fluid-filled sac around your spinal cord in your back. Your surgeon will place the epidural catheter during your surgery. The epidural catheter is a very thin tube and will be placed in the epidural space, the area between a membrane and vertebral wall (outermost of part of spinal column).

Following surgery, the Acute Pain Service anesthesiologist will give Bupivacaine and fentanyl combination very slowly and continuously through the epidural catheter by using an automatic pump. Bupivacaine is a numbing medication, which is used for regional anesthesia. Fentanyl is a fast and rapid acting morphine type medication. They both will be used at very low amounts.

You will fill out questionnaires about state of your mind, worry (anxiety), and characteristics of your pain before the surgery and daily or at follow-up visit. It will take about 5 minutes.

We will ask you daily to make a mark on a pain assessment paper. Each assessment should take no more than 5 minutes.

How long can I expect to be in this study?

This study will take place during your hospital stay and until the first follow-up office visit. It may take approximately 50 days.

You can choose to stop participating for any reason at any time. However, if you decide to stop participating in the study, we encourage you to tell the researchers.

What are the risks of the study?
Because of your participation in this study, you are at risk for the following side effects: bleeding, hematoma, infection at the site of medication administration, although they are extremely rare. You should discuss these with the researchers and your regular health care provider.

- **Risk of Epidural Analgesia**

There is possibility of a non-working epidural catheter, inadequate pain relief, infection, damage to nerves, arteries, and veins. An inadvertent placement of the epidural catheter may result in absorption of numbing medication (bupivacaine) and opioid (fentanyl) into the spinal sack, which covers your brain (intrathecal). If medications pass into the intrathecal area, you may have weakness (transient paralysis) in your lower limb and hypotension. If medications move to your blood stream, you may have side effects of numbing medication (bupivacaine) such as local anesthetic toxicity and opioid (fentanyl) side effects such as drowsiness, pruritus, and urinary retention.

Other side effect of epidural catheter placement includes puncture of the outer most layer of the brain membranes (dura mater) which may cause headache. The epidural catheter will be placed by the surgeons under direct visualization at the end of the surgery.

1-**Infection**
The epidural catheter may cause an infection such as meningitis. The incidence is very rare and increased after 3 days of the epidural catheter placement. Evidence of infection will be monitored during postoperative period per hospital protocol. The epidural catheter will be removed at 72 hrs. after surgery.

2. **Local anesthetic (bupivacaine) toxicity**
There is a rare but serious potential side effect related to the numbing medication (bupivacaine) itself. If numbing medication is given into a blood vessel, in large amounts, it can cause nausea, vomiting, tinnitus, lightheadedness, dizziness, drowsiness, tachycardia (increased heart rate), blurred vision, and numbness around mouth, hypotension, seizures and even cardiac arrest**.** There is minimal risk of local anesthetic toxicity with an advert injection into the blood vessel while giving pain medication. The epidural catheter will be placed by an experienced surgeon and bupivacaine will be given in a small amount via automatic pump, therefore the risk is minimal.

There is the possibility of local anesthetic and opioid absorption from the raw surgical area. The surgical wound will be closed after ensuring the surgical field is dry and the catheter is in epidural space.

3. **Risk of bleeding**
Epidural catheter placement may cause epidural bleeding and hematoma. There is also possibility of neurological damage as a consequence of an epidural hematoma. There may be a bleeding risk into the epidural space if you have a history of receiving therapy against blood clotting. The epidural catheter will be placed by an experienced surgeon during your surgery. The Acute Pain Service will remove the epidural catheters very carefully.

4. **Risk for epidural opioid (fentanyl)**
Epidural fentanyl may cause common side effects of opioids including nausea, vomiting, pruritus (itching), drowsiness, urinary retention, and constipation. It may also decrease your breathing frequency to less than 8 times in a minute (normal is 12-20 breaths per minute), but low doses of fentanyl as opioids will be given very slowly and continuously through epidural catheter. Because the dose of opioids in the study is very low, the investigators don't expect a decrease in respirations and common side effects of opioids such as nausea, vomiting, and constipation.

5-**Risk of Epidural Bupivacaine**
Epidural bupivacaine may cause transient numbness or weakness, paralysis of lower extremities. Some degree of numbness and paresthesia (burning or prickly sensation) is expected, but not severe weakness in your lower limbs. Bupivacaine will be used in low doses (0.0625%) to prevent development of weakness.

- **Risk of intravenous Patient-Controlled Analgesia**

1**. Infection and vessel damage:**
If the intravenous cannula is not placed correctly, it may cause damage of vessels and blood leaks into the surrounding tissue. Using this misplaced cannula also causes edema, damage of surrounding tissue and pain. There is risk of infection, which may lead to vein infection (phlebitis), tissue infection (cellulitis) and even sepsis (infection of all organs).

2. **Risk of hydromorphone**
You will receive hydromorphone as opioid via your vein as a part of the treatment for pain after surgery. Hydromorphone has side effects including nausea, vomiting, difficulty in urination, pruritus (itching), drowsiness, constipation. It may also decrease your breathing frequency, but low doses of hydromorphone will be given very slowly and continuously through your vein. Because the dose of opioids in the study is very low and investigators don't expect a decrease in respirations.

- **Psychological Stress**

Some of the questions we will ask you as part of this study may make you feel uncomfortable. You may refuse to answer any of the questions, take a break or stop your participation in this study at any time.

- **Loss of Confidentiality**

Any time information is collected; there is a potential risk for loss of confidentiality. Every effort will be made to keep your information confidential; however, this cannot be guaranteed.

- **Other Risks**

There may possibly be other side effects that are unknown at this time. If you are concerned about other, unknown side effects, please discuss this with the researchers.

How will risks be minimized or prevented?

The epidural catheter will be placed by the experienced surgeon with epidural catheter placements. The Acute Pain Service anesthesiologist will perform intravenous patient-controlled analgesia. They will use an existing venous catheter to connect the automatic pain pump to your vein.

To prevent the risk of serious side effects associated with local anesthetic overdose, bupivacaine will be given very slowly in low dose via the epidural catheter at the volume limited to those that are known to be safe. Before starting the epidural infusion, an experienced anesthesiologist will also check placement of the catheter.

You will be monitored closely postoperatively and there will always be immediate therapy available for any serious side effects.

What will my responsibilities be during the study?

While you are part of this study, the researchers will follow you closely to determine whether there are problems that need medical care. It is your responsibility to do the following:

- Ask questions about anything you do not understand.
- Follow the researchers' instructions.
- Let the researchers know if your telephone number or address changes.
- Tell the researchers before you take any new medication, even if it is prescribed by another doctor for a different medical problem or something purchased over the counter.
- Report to the researchers any injury or an illness while you are on study even if you do not think it is related.

If I agree to take part in this research study, will I be told of any new risks that may be found during the course of the study?

Yes. You will be told if any new information becomes available during the study that could cause you to change your mind about continuing to participate or that is important

to your health or safety.

What should I do if I think I am having problems?
If you have unusual symptoms, pain, or any other problems while you are in the study, you should report them to the researchers right away. Telephone numbers where they can be reached are listed on the first page of this consent form.

If you have a sudden, serious problem, like difficulty breathing or severe pain, go to the nearest hospital emergency room, or call 911 (or the correct emergency telephone number in your area).

What are the possible benefits of this study?
If you agree to take part in this study, there may or may not be direct benefits to you. However, the researchers cannot guarantee that you will benefit from participation in this research.

You may need less pain medications to control your pain after your surgery. Investigators are expecting better pain control and less opioid-related side effects by using epidural route for pain treatment.

We hope the information learned from this study will benefit others having lumbar fusion surgery in the future. Information gained from this research could lead to better pain control after surgery.

What options are available if I decide not to take part in this research study?
You do not have to participate in this research to receive care for your medical problem. Instead of being in this study, you will receive the regular postoperative pain regimen via vein, epidural, or by mouth. Please talk to the researchers or your personal doctor about these options.

Will I be paid if I take part in this research study?
No. You will not be paid to take part in this research study. There are no funds available to pay for parking expenses, transportation to and from the research center, lost time away from work and other activities, lost wages, or childcare expenses.

Will my insurance provider or I be charged for the costs of any part of this research study?
No. Neither you, nor your insurance provider, will be charged for anything done only for this research study (i.e., the Screening Procedures or Monitoring/Follow up Procedures described above). Both intravenous and epidural patient-controlled analgesia are standard of care. You will receive one of them regardless of participation to the study.

However, the standard medical care for your condition (care you would have received

whether or not you were in this study) is your responsibility (or the responsibility of your insurance provider or governmental program). You will be charged, in the standard manner, for any procedures performed for your standard medical care.

What will happen if I am harmed as a result of taking part in this study?

It is important that you report any illness or injury to the research team listed at the top of this form immediately. Compensation for an injury resulting from your participation in this research is not available from the University of Texas Southwestern Medical Center at Dallas.

You retain your legal rights during your participation in this research.

Can I stop taking part in this research study?

Yes. If you decide to participate and later change your mind, you are free to stop taking part in the research study at any time.

If you decide to stop taking part in this research study, it will not affect your relationship with the UT Southwestern staff or doctors. Whether you participate or not will have no effect on your legal rights or the quality of your health care.

If you are a medical student, fellow, faculty, or staff at the Medical Center, your status will not be affected in any way.

If I agree to take part in this research study, can I be removed from the study without my consent?

Yes. The researchers may decide to take you off this study if:

- Your medical problem remains unchanged or becomes worse.
- The researchers believe that participation in the research is no longer safe for you.
- The researchers believe that other treatment may be more helpful.

Will my information be kept confidential?

Information about you that is collected for this research study will remain confidential unless you give your permission to share it with others or if we are required by law to release it. You should know that certain organizations that may look at and/or copy your medical records for research, quality assurance, and data analysis include:

- The UT Southwestern Institutional Review Board.

In addition to this consent form, you will be asked to sign an "Authorization for Use and Disclosure of Protected Health Information." This authorization will give more details about how your information will be used for this research study, and who may see and/or get copies of your information.

Are there procedures I should follow after stopping participation in this research?

No, we only encourage you to immediately inform the research personnel that you wish

to withdraw from the research.

Whom do I call if I have questions or problems?
For questions about the study, contact Enas Kandil at (214) 64 5-0629 during regular business hours and at 214-786-4248 after hours and on weekends and holidays.

For questions about your rights as a research participant, contact the UT Southwestern Institutional Review Board (IRB) Office at 214-648-3060.

SIGNATURES:

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

You understand that a copy of this signed consent document, information about this study, and the result of any test or procedure that may affect your medical care, may be included in your medical record. Information in your medical record will be available to heath care providers and authorized persons including your insurance company.

Your signature below certifies the following:

- You have read (or been read) the information provided above.
- You have received answers to all of your questions and have been told who to call if you have any more questions.
- You have freely decided to participate in this research.
- You understand that you are not giving up any of your legal rights.
- You understand that a copy of this signed consent document, information about this study, and the results of any test or procedure that may affect your medical care, may be included in your medical record. Information in your medical record will be available to health care providers and authorized persons including your insurance company.

_____
Name of Participant (Printed)

_____ _____ _____ AM / PM
Signature of Participant Date Time

_____
Name of Person Obtaining Consent (Printed)

_____ _____ _____ AM / PM

Signature of Person Obtaining Consent Date Time