MODERN ORTHOPEDICS

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Total Knee Arthroplasty Post-Operative Instructions

NERVE BLOCK

- **If you received a nerve block during surgery**, you may have numbness or inability to move the limb. Do not be alarmed as this may last 8-36 hours depending upon the amount and type of medication used by the anesthesiologist. Make sure you if you are experiencing numbness after 36 hours, please call the office.

- When the nerve block begins to wear off, you will feel a tingling sensation, like pins and needles. It is important that you start taking the pain medication at that time to ensure that you "stay ahead of the pain.".

PAIN CONTROL

PLEASE READ THIS CAREFULLY - A multimodal approach is the key to effective pain control while minimizing the negative side effects of narcotic pain medications. Outlined below is the best step-by-step approach to optimize your post-operative recovery:

1) **Set Realistic Expectations**
    - Knee surgery is painful, the goal of this pain management program is to *reduce* your pain to a manageable level but not eliminate it.
    - Remember that this pain is normal and is sign that your body is healing - there will be peaks and valleys naturally in your pain level throughout the course of your rehab - do not be alarmed by these changes
    - The knee will be achy and sore after exercise and feel weak due to the inhibition muscle firing induced by the surgical trauma. Rest assured that this is part of the process.

2) **Local Anesthetic**
    - Chosen Agent: Exparel
        - Mechanism: Temporarily shuts down pain signaling from local nerves (just like Novocaine at the dentist)
        - At the conclusion of surgery the entire surgical site was infiltrated with a liposomal encased (read: slow release) anesthetic that can be effective for anywhere between 18-72 hours after surgery.
        - Be prepared that you may have a spike in your pain as this anesthetic begins to diminish in effectiveness. Nothing is wrong, this is simply the local anesthetic dissipating. Adjust your pain medication intake to compensate.

3) **Baseline Pain Control**
    - Chosen Agent: Tylenol (Acetaminophen)
        - Dosing Scheme: 2 x 500 mg tab every 6 hours

- Mechanism: Centrally acting pain and fever reducer, exact mechanism of action unknown.
- Reason for Use: This provides baseline pain control and actually potentiates the effectiveness of narcotic pain medications. Although many people discount the effect of this medication due to its limited acute action, consistent use especially in combination with other medications is tremendously effective.
- Precautions:
    - Safe Adult Dosing: 4000 mg / day
    - If you have known liver disease, kidney issues, or very low body mass we may need to modify dosing.
    - **Do not take more than 4000 mg per day** as this will overwhelm the liver's protective enzymatic degradation process. This medication is actually included in many narcotic pain medications combos (Norco, percocet, etc) and thus intake from all sources must be accounted for.

4) Inflammation Control

- Chosen Agent #1: Celebrex (Celecoxib)
    - Dosing Scheme: 1 x 200 mg tab scheduled daily for the first 10 days after surgery and then as needed for increased swelling. Always take with food.
    - Mechanism: COX-2 Selective Inhibitor (works like ibuprofen but can be taken at higher doses without some of the side-effects)
    - Reason for Use: Reduces production of inflammatory cytokines (local tissue pain signalers) which both reduces pain and reduces swelling
    - Precautions:
        - Like all non-steroidal anti-inflammatory medication celebrex can cause problems in people with stomach pain, hx of ulcers, kidney disease, uncontrolled hypertension, or a known history of cardiac ischemia (heart attack, angina, etc) - please inform Dr. Barrett if any of these conditions apply to you.
        - This medication interacts with blood thinning medications, if you are on a daily blood thinner please let Dr. Barrett know before taking this medication.
        - Stop this medication if you experience abdominal pain and contact Dr. Barrett's office.
        - Drink plenty of water with this medication to reduce effect on kidneys

- Chosen Agent #2: Cold Therapy
    - Mechanism: Cold causes capillary constriction around the area of injury and limits the influx of inflammatory cells that promote pain and swelling.
    - Dosing:
        - If provided Cooling Machine: Machine will regulate the flow of water to keep extremity at appropriately cold temperature. This may be used continuously as tolerated and generally the more you are able to use in the first 5 days after the surgery the better
        - If using ice packs: 20 minutes on followed by 20 minutes off as much as tolerated. generally the more you are able to use in the first 5 days after the surgery the better
    - Precautions:
        - If using cooling machine:
            (a) Cooling pads should not be in direct contact with exposed skin.
            (b) Check skin every hour to ensure no frost-bite developing
            (c) If using overnight ensure that the area is well padded
        - If using ice packs:
            (a) Do not allow the ice pack to melt or condensate and get your incisions or dressing wet.
            (b) Do not use frozen meat or other bacteria laden frozen good for ice pack replacement : (

5) **Peripheral Nerve Modulation**
    - Chosen Agent: Gabapentin
        - Dosing Scheme:
            - 1 x 100 mg tab upon awakening
            - 1 x 100 mg tab midday
            - 1 to 3 x 100 mg tab (possible total of 300 mg) prior to bed.
        - Mechanism: Nerve transmission modulator - slows peripheral nerve (pain receptors) transmission and thus reduces signaling from "overactivated" pain fibers
        - Reason for Use: Additive pain control + Helps with sleep when taken before bed
        - Precautions:
            - Primary reported side-effect is lethargy / cognitive fogginess. Medication should be uptitrated to provide maximum therapeutic benefit with minimal side-effect

6) **Rescue Pain Control (Narcotics)**
    - Chosen Agent: Oxycodone 5 mg tabs
    - Dosing Scheme:
        - 1-2 tabs for pain every 4 hours
        - Take pain medication consistently for the first 3 days following discharge from the hospital and then ONLY AS NEEDED thereafter.
    - Mechanism: Activates opioid receptors in the central nervous system to alter the brains
    - Reason for use: Acute pain control
    - Precautions:
        - Tolerance induction is rapid to narcotic medications and when taken consistently the body actually upregulates pain receptors to compensate for effect within 96 hours
        - The primary side-effect of narcotic is CONSTIPATION - a stool softener will be prescribed and should be taken while you are taking this medication
    - More Information:
        - The average total knee patient when maintained on the above regimen will take only 35 tablets after surgery although there is significant variation around this mean.
        - DO NOT DRIVE OR OPERATE MACHINERY WHILE TAKING NARCOTIC PAIN MEDICATIONS
        - If you would like to dispose safely of excess pain medications they can be deposited at any local pharmacy

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NOTE: Prescription renewals (if necessary) are handled 9am to 5 pm, Monday through Thursday and until Noon on Friday. If your prescription is running low and you think that you may need more, please do not wait until the weekend or until your medication has completely run out as new stricter drug prescription laws will make it impossible to get your medications in a timely manner. If you are planning to travel out of town, please make sure you take your medication with you.

PHYSICAL THERAPY

- Immediate Post-Op Goals:
    - Day of Surgery: Stand at bedside
    - Post-Op Day #1: Walk to bathroom with assistance, work primarily on achieving full extension
    - Post-Op Day #2: Walk 20 feet with assistance, bend to 60 degrees
- At-Home Therapy Goals:
    - By 1 week post-op: Full extension (leg straight), walk 50 feet with walker
    - By 2 weeks post-op: 0-90 degrees, should be able to walk into office for your follow up appointment
    - By 4 weeks post-op: 0-110 degrees
    - By 6 weeks post-op: 0-130 degrees (or more!)

If you have not already contacted the physical therapist to arrange your sessions please do so immediately as therapists will often be booked up for several weeks. **Please call me if you are not progressing appropriately in therapy - particularly if your ROM is not at least 0-90 degrees by two weeks post-op.**

DRESSINGS

- Day #1-2
    - Leave dressing in place - you may sponge bath around the dressing but do not get it wet
- Day #3
    - Remove outer dressing (clear plastic and gauze) - underneath your incision is covered by a surgical support mesh (SYLK dressing) which renders it essentially waterproof
    - You may shower and allow water to run over the incisions but not scrub
    - DO NOT submerge the incision in water (bath, hot tub, pool, etc)
    - You may notice the ends of suture sticking out of the glue on either end - leave these alone and we will trim them at your first post-op visit.
- Day #14
    - Suture ends are trimmed in the clinic.
    - It will take another 1-2 weeks before the surgical glue completely debonds.

BLOOD CLOT PROPHYLAXIS

- In order to prevent the formation of blood clots associated with orthopedic interventions of this magnitude it is essential that you are on some sort of chemical prophylaxis for a minimum of 6 weeks following surgery. The agent and dosage will be determined based on your risk category outlined below:
    - High Risk: Personal history of blood clots, stroke, carotid stenosis, or known clotting disorder.
        - Lovenox in hospital
        - Eliquis daily dosing
    - Moderate Risk: Family history of clots, stroke, etc
        - 2 weeks of injectable lovenox
        - 6 weeks aspirin 325 mg twice daily
    - Low Risk: No issues with blood clotting personally or in family
        - 6 weeks of aspirin 81 mg twice daily

- If you are already on a blood thinning medication please let Dr. Barrett know prior to surgery so that he may consult with the prescribing provider to determine an appropriate pre and post-operative anticoagulation plan.

RESUMING MEDICATIONS:

- **These are general guidelines, please discuss with Dr. Barrett and your PCP / Rheumatologist regarding an appropriate medication resumption schedule after surgery**
    - Blood Pressure Meds: Post-op day (POD) #1 if no nausea, vomiting, dizziness
    - Immune Modifying Medications:
        - Plaquenil → May continue regular dosing
        - Prednisone (<5 mg / day) → Resume POD #3
        - Prednisone (>5 mg / day) → Discuss with prescribing provider
        - Methotrexate → Hold for 1 week prior to surgery and 1 week after
        - Infliximab (Remicade), Adalimumab (Humira), Enbrel → Must stop for two weeks prior to surgery and for two weeks after

SELF CARE

- **Diet**

- Start with clear liquids (water, juice, Gatorade) and light foods (jello, soup, crackers). Progress to a normal diet as tolerated if you are not nauseated. Avoid greasy or spicy foods for the first 24hrs to avoid GI upset. Increase fluid intake to help prevent constipation.

- **Stool Softener**
  - Colace will be prescribed to you and taken while you are taking narcotic pain medication to avoid constipation. You should stop taking these medications if you develop diarrhea. Over the counter laxatives (senna, bisacodyl) may also be used if you find you need additional help with constipation.

- **Driving**
  - Ultimately, it is your judgment to decide when you are safe to drive, but if you are at all unsure, do not risk your life or someone else's.
  - As a general guideline you should meet the following criteria to drive
    - Off all narcotic pain medications
    - Able to put full weight on the extremity without pain
    - Able to perform a straight leg raise and hold for 10 seconds

- **Traveling**
  - Avoid flights and long drives (> 2 hours) for 6 weeks after surgery. It is important to discuss your travel plans with Dr. Barrett, as additional medications may need to be prescribed to help prevent blood clots if travel is unavoidable.

RETURN TO WORK

All patients undergoing total knee arthroplasty will have a work release written for 3 months post-op. We are always happy to help people return to work earlier if they feel comfortable.

- **Return to sedentary work:** Most people can return to sedentary work by around 4 weeks postoperatively although they should be aware that they will need to take time during the day to stretch and elevate the extremity.

- **Return to physical jobs:** If your job requires extensive walking, standing or even more physically demanding tasks then it will likely take the full three months before you are capable of returning to work. If the demands of your job make it difficult to return at that time point you should discuss this with Dr. Barrett at least two weeks in advance of your planned return.

FOLLOW-UP

A follow-up appointment should be arranged around 14 days after surgery. If one has not been provided or you have not heard from the office after 3 days please call 408-353-0203 to schedule.

*Typical Follow up schedule:

2 Weeks: X-ray, Wound Evaluation, ROM Check
6 Weeks: ROM Check, Walking Evaluation without gait aids
12 Weeks: X-rays, Walking Evaluation
1 Year: X-ray
3 Years: X-ray
5 Years: X-ray

*If motion or function is not developing as expected you may need to be seen for additional appointments

NOTIFY US IMMEDIATELY FOR ANY OF THE FOLLOWING:

Most orthopedic surgical procedures are uneventful. However, complications can occur. The following are things to be aware of in the immediate postoperative period.

- FEVER – Temperature rises above 101°F or associated with chills/sweats
- WOUND – If you notice drainage more than 4 days after surgery, if the drainage turns yellow and foul smelling, if you need to change gauze multiple times per day, or if sutures become loose.
- CARDIOVASCULAR – Chest pain, shortness of breath, palpitations, or fainting spells must be taken seriously. Go to the emergency room (or call 911) immediately for evaluation.
- BLOOD CLOTS – Orthopedic surgery patients are at risk for blood clots. While the risk is higher for lower extremity surgery, even those who have undergone upper extremity surgery are at an increased risk. Please notify Dr. Barrett if you or someone in your family has had blood clots or any type of known clotting disorder. Signs of blood clots may include calf pain or cramping, diffuse swelling in the leg and foot, or chest pain and shortness of breath. Please call the office or go to the hospital if you recognize any of these symptoms.
- NAUSEA – If you have severe vomiting, diarrhea, or constipation, or cannot keep any liquid down
- URINARY RETENTION – If you cannot urinate the night after surgery, please go to the Emergency Room.

NORMAL SENSATIONS AND FINDINGS AFTER SURGERY:

- PAIN: We do everything possible to make your pain/discomfort level tolerable, but some amount of pain is to be expected.
- WARMTH: Mild warmth around the operative site is normal for up to 3 weeks.
- REDNESS: Small amount of redness where the sutures enter the skin is normal. If redness worsens or spreads it is important that you contact the office.
- DRAINAGE: A small amount is normal for the first 4 days. If wounds continue to drain after this time please contact the office.
- NUMBNESS: Around the incision is common.
- BRUISING: Is common and often tracks down the arm or leg due to gravity and results in an alarming appearance, but is common and will resolve with time.
- FEVER: Low-grade fevers (less than 101.5°F) are common during the first week after surgery. You should drink plenty of fluids and breathe deeply.