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Total Knee Arthroplasty Post-Operative Care

This protocol was developed to provide the physical therapist with guidelines for treatment of a patient who has undergone primary total knee arthroplasty. These guidelines are not a substitute for appropriate clinical decision making. It is essential that the therapist take into consideration the patient's general health, integrity of associated joints and any post-op complications. In a revision total knee arthroplasty or in cases where there is more connective tissue involvement, Phase I and II should be progressed with more caution. The protocol is divided into 4 phases. Patients will typically continue with formal physical therapy in some capacity until they are in late Phase III or early Phase IV. Anticipated number of visits range from 12 to 20 formal PT sessions. Progression from phases should not occur prior to the appropriate post-op timeframes; however, phase progression should be delayed if the patient does not meet the progression criteria. Tolerance to exercise should be closely monitored. Patients should not have a significant increase in pain after treatment or exercise. If this occurs, treatment is too vigorous and should be modified accordingly.

Phase I: Post-Op Phase
POD 1 to Week 2

Formal Physical Therapy:
- Few patients will begin outpatient PT during this phase
- Exercises from this phase should be continued until they are no longer challenging

Goals:
- Activate quadriceps muscle contraction
- Independent ambulation with appropriate assistive device on level surfaces and stairs
- Knee extension PROM: to 0°
- Knee flexion ROM: ≥90°
- Control swelling

Precautions:
- Monitor wound healing closely
- Monitor for signs of DVT
- Avoid prolonged static positioning
- No resisted exercise
- Avoid torque or twisting forces across the knee joint especially when weight bearing

Physical Therapy Treatment:

- Ankle pumps with leg elevation
- 4-way SLR
- Quad sets/glut sets/ham sets
- Hip abduction/adduction
- Passive knee extension stretch
- Knee AROM/AAROM/PROM exercises (seated and supine)
- E-stim to quads with quad exercises (1-2 hours a day)
- Gait training
- Transfer training

Recommended HEP:

- Knee flexion/extension ROM 5 times a day
- PT-selected exercises 3 times a day

Criteria for Progression to Phase II:

- Independent with transfers
- Independent ambulation with appropriate assistive device
- Knee ROM: ≥10-80°
- Ability to demonstrate quadriceps contraction or perform SLR

Phase II: Motion Phase
Weeks 2 to 6

Formal Physical Therapy:

- The majority of patients will be treated 2 times per week
- If there is significant knee stiffness, the patient can be seen 3 times a week until ROM is on schedule

Goals:

- ROM: ≥0-110°
- Enhance muscular strength/endurance
- Establish dynamic joint stability
- Return to functional activities
- Normal ambulation without assistive device
- Decrease inflammation/swelling

Precautions:

- Monitor for increased edema with increasing activity
  - Continue with cryotherapy as needed
- Avoid ambulation without assistive device in the presence of significant gait deviation
- Avoid reciprocal stair negotiation until adequate strength/control is achieved
- Avoid prolonged static positioning

Physical Therapy Treatment:

Weeks 2 to 4

- Continue with Phase I exercises/treatments as appropriate
- Hamstring curls (no weight)
- ¼ squats
- Stretching, as needed
  - Hamstrings, gastrocnemius, soleus, quads, hips
- Bicycle for ROM (no resistance)
- LAQ/SAQ
- Patellar mobilizations once staples/sutures are removed and incision is stable
- Scar mobilization once incision healed
- Leg press (light)
- Balance/proprioception training

Weeks 4 to 6

- Continue with above exercises/treatment as appropriate
- ¼ front lunge
- Front and lateral step ups (start with 2-4" and progress as tolerated)

Recommended HEP:

- Phase I and II exercises as appropriate
- Focus on ROM exercises if stiff

Criteria for Progression to Phase III:

- AROM: 0-110°
- Good voluntary quadriceps control. SLR without quad lag.
- Minimal pain/inflammation
- Independent community ambulation without assistive device and without gait deviations
- Ascend 4" step

Phase III: Intermediate Phase
Weeks 7 to 12

Formal Physical Therapy:

- Most patients will continue with formal PT 2 times a week with anticipated discharge in late Phase III or early Phase IV

Goals:

- Progress to full ROM (0-120°)
- Enhance strength/endurance
- Good patellar mobility
- Return to most functional activities and begin light recreation activities

Precautions:

- No running, jumping or plyometric activity

Physical Therapy Treatment:

- Continue with appropriate Phase II exercises
- Initiate progressive walking program
- Progress Phase II activities to light resistance
- Progress age-appropriate balance and proprioceptive activities
- Forward step downs
- Wall squats

Criteria for Progression to Phase IV:

- Full, pain-free AROM (or ROM plateau based on preoperative ROM)
- 4+/5 lower extremity strength
- Minimal/no pain or swelling

Phase IV: Advanced Strengthening Phase
Weeks 13 onward

Formal Physical Therapy:

- Most patients will be discharged in late Phase III or early Phase IV
- General guidelines of discharge are as follows:
  - Non-antalgic, independent gait
  - Independent, reciprocal stair negotiation
  - Pain-free AROM
  - Normal age-appropriate balance and proprioception
  - Independent with HEP
  - Achievement of patient-specific goals

Goals:

- Maintain full ROM
- Return to appropriate recreational sports/activities
- Enhance strength, endurance and proprioception as needed for ADL's and recreation

Recommended HEP:

- Continue with previous exercises
  - Progress resistance and repetitions
- Increase duration of endurance activities
- Initiate return to specific recreational activity: e.g. golf, doubles tennis, progressive walking or biking program