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Physical Therapy Protocol: Anterior Hip Arthroplasty

Philosophy:
Anterior total hip arthroplasty (ATHA) is an elective procedure to relieve pain and restore function to a joint with end-stage arthritis. Predictable results come only with good pre-operative planning and integrated patient participation in rehabilitation. Physical therapy is important prior to undertaking surgery as well as throughout the recovery phase. Prevention of infection via antibiotic prophylaxis for all dental procedures is necessary.

PHASE I, Surgery to 6 weeks Post-Op

Rehabilitation Goals:

- Protection of the post-surgical hip through WBAT gait and education on ROM precautions (*Direct anterior*: limit passive extension and ER)
- Restore hip ROM within the above precautions.
- Normalize gait with assistive device. Dependent upon previous functional level before ATHA, as well as patient progress post-ATHA. Between post-op weeks 3 and 6 most patients should be able to transition to 1 crutch or use of cane and begin walking short distances without assistive device. This needs to be useful, functional gait, non-antalgic Trendelenburg negative.
- Restore leg control: Patients should be able to perform repeated standing hip abduction on the affected side, and demonstrate fluent movement patterns
- Transition from narcotic pain meds to NSAIDs
- Prevent deep venous thrombosis via bilateral TED hose use during the day and anticoagulation per MD

Precautions:

- Use assistive device(s) for normal gait, WBAT unless otherwise specified by physician
- Avoid overuse of hip flexor activation with transfers
- Avoid SLRs for 4 weeks
- ROM should be regained mostly through active/active assistive movement exercises (within precautions). Passive forced stretching and joint mobilizations should be avoided secondary to potential for hip dislocation/subluxation
- Active hip extension and IR is allowed
- Encourage normal extension/stride with gait
- Encourage normal extension/stride with gait
- Limit passive extension and ER
- No yoga for 6 weeks post op

ROM Exercises:

- Within the ROM restrictions

Suggested Therapeutic Exercise/Treatment:

- Gait activities (marching, heel-toe rocking, sidestepping) – may utilize pool for gait activities once the suture sites are healed without drainage or scab (4 weeks post-operatively at earliest, unless otherwise indicated by the surgeon). Aquatic exercise/pool should be strongly considered if Trendelenburg is not improved by 6 weeks post-op.
- Isometric hip extension, abduction, adduction, internal rotation and external rotation
- Weight shifting – progressing to balance exercises
- Hip abduction, adduction, and extension active range of motion (AROM) without resistance. (With reduction in substitution patterns)
- Begin with short arc movements and progress to full arc
- Discuss all transfers with limited initiation of hip flexors (may use arms or strap to assist moving the leg side to side)
- Begin in gravity minimized positions and progress to anti-gravity positions (i.e., abduction inside lying)
- Bridging, supine hip dangle, grade 1-2 hip mobilizations

Cardiovascular Exercises:

- Upper body circuit training or UBE if patient desires
- Treadmill, elliptical, Nordic Track

Progression Criteria:

- Achievement of goals above

PHASE II, 6-8 weeks

Rehabilitation Goals:

- Regain muscular strength (focus on abduction)
- Progress off assistive device for all surfaces and distances, demonstrating normal gait pattern
- Single leg stance control
- Good control and no pain with functional movements, including step up/down, sit to stand, squat
- Functional progress with donning socks and garments

Precautions

- Discontinue (D/C) crutch/cane when gait is normal and pain free. Do not encourage discontinuing device if pain or Trendelenburg remains
- Post-activity soreness should resolve within 24 hours

- Patients should regain full functional AROM through active movements at controlled speeds. Avoid passive/forced movements
- Begin with single plane, non-weight bearing movements
- Avoid multi-planar weight bearing movements within the ROM restrictions until patient demonstrates good control with single plane movements

Suggested Therapeutic Exercises:

- Stationary bike (10-20 minutes)
- Transfer training to and from the ground
- ROM exercises to assist donning socks and LE garments
- Gait and functional movement drills
- Lo-impact core, balance and proprioception training
- Hip AROM with progression of resistance
- Progressive abduction strengthening is the focus of this phase
- Standing/side-lying abduction exercises
- Functional closed chain abduction strengthening
- Aquatic pool exercises if Trendelenburg persists

Cardiovascular Exercises:

Lo-impact endurance training; stationary bike, Nordic track, flutter kick with kickboard, deep water run, elliptical

PHASE III, 9-12 weeks

Rehabilitation Goals:

- Improve muscular strength and endurance
- Good control and no pain with all activities of daily living (ADL) as well as work specific movements.
- Able to walk longer distances (1 mile) without a limp

Precautions:

- Post-activity soreness should resolve within 24 hours
- No impact activities (running and jumping are **highly** discouraged).

Suggested Therapeutic Exercise:

- Strength and balance exercises with progression from double leg to single leg and single plane drills to multi-plane drills
- Dynamic control exercise: begin with low velocity, single plane and progress to higher velocity, multi-plane activities
- Progression of hip and core strengthening
- Continue ROM/stretching towards (and potentially above) 90 degrees flexion with ER for those patients who are allowed to exceed this for shoe and sock donning

- Advance aerobic training as tolerated (walking, swimming, golf, hiking, Stairmaster, weight training, elliptical trainer). Experienced cross-country skiing, doubles tennis, bicycle and downhill skiing allowed.
- Antibiotic prophylaxis for any dental procedures.
- A lifelong commitment to exercise is encouraged for the continued successful joint arthroplasty.

Cardiovascular Exercise:

- Replicate work specific energy demands (non-impact)
- Lo-impact sports, weight training, or yoga are all allowed

References:

- Argillo J, Barerera S, Dynan M. Lahey Hospital and Medical Center: *Rehabilitation Protocol: THA.* 2015.
- The Specialty Team for Arthroplasty Rehabilitation (STAR) Team in conjunction with the UW Health Joint Replacement Surgeons. (2014, May). *Outpatient Rehabilitation Guidelines for Traditional (Metal on Polyethylene) Total Hip Arthroplasty*. Retrieved from http://www.uwhealth.org/orthopedic-surgery-rehab/total-hip-replacement/11209.