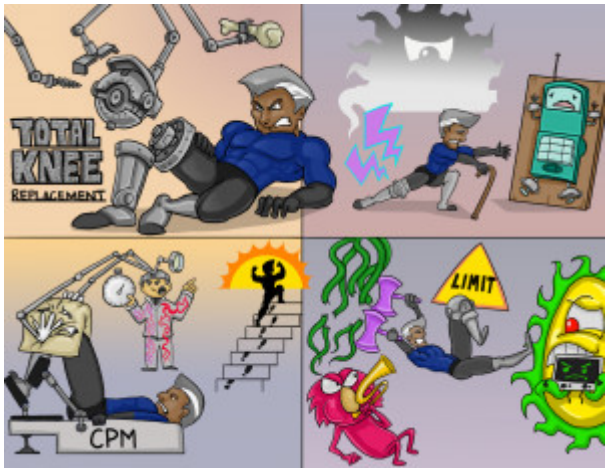
Total Knee Replacement (TKR)

Total knee replacement (TKR), also known as total knee arthroplasty (TKA), is a surgical procedure used to replace weight-bearing surfaces of the knee joint in patients experiencing uncontrolled joint pain or impaired mobility. Either part or the entire knee joint is replaced with either a metal or plastic prosthetic device. A compression dressing is applied to immobilize the knee in extension immediately after surgery. A continuous passive motion (CPM) device and early ambulation is encouraged to increase range of motion. Instruct the patient to limit flexion positions to prevent permanent flexion that may lead to surgical correction. Frequent neurovascular assessments are performed while the patient is monitored for signs of infection. To prevent venous thromboembolism, prophylactic administration of low molecular weight heparin or low dose unfractionated heparin is administered up to 35 days after discharge.



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Indications

Joint Pain (Uncontrolled)

Joint Pain-bolt

Uncontrolled joint pain related to stiff knees is an indication for TKR. Osteoarthritis and rheumatoid arthritis are common causes of painful knee joints due to severe deterioration of the knee joint. The bone grafting in TKR helps correct structural defects by smoothing out the surface of the joints.

Impaired Mobility

Impaired Mobility with Mobile-phone

Patients with stiff and painful joints may experience difficulty with walking or climbing stairs. Impaired mobility related to stiff and painful joints may be an indication for TKR. The replacement of the knee joint may improve or maintain the patient's range of motion.

Considerations

Compression Dressing

Compressing Dressing

Immediately after TKR, a compression dressing is applied to immobilize the knee in extension. The dressing is removed before discharge and may be replaced with a knee immobilizer. The immobilizer is indicated to maintain extension of the knee joint during ambulation and rest for next four weeks following TKR.

Frequent Neurovascular Assessments

Frequent-clock Nerve-vessel Assess-man

Since TKR may cause injury to the nerves and arteries, frequent neurovascular checks are done after total knee replacement. Post-operatively, neurovascular checks should be performed every 2 or 4 hours after a patient has received a continuous peripheral nerve block (CPNB) for postoperative pain management.

Continuous Passive Motion (CPM) Devices

CPM device

Immediately after surgery, a continuous passive motion (CPM) device is placed and monitored by the nurse. A knee immobilizer or posterior plastic shell may be used after removal of the compression dressing in order to keep the operative knee straight. Instruct the patient to avoid squatting, kneeling, twisting, and pivoting at least six week following TKR. Refer the patient to physical therapy to increase range of motion and gradually obtain 90 degree knee flexion. Techniques to increase range of motion include isometric quadriceps exercises and straight leg raises.

Early Ambulation

Early-sun Walking

Early ambulation is encouraged following TKR. A knee immobilizer is used within 24 hours post-operatively. The actual weight bearing amount allowed for the patient is indicated by the surgeon. Physical therapy should be initiated prior to discharge in order to promote weight-bearing activity.

Venous Thromboembolism (VTE) Prophylaxis

Vines Trombone Elmo with Purple-axes

To prevent the development of venous thromboembolism (VTE), prophylactic medications including low dose unfractionated heparin or low molecular weight heparin are administered up to 35 days following discharge after TKR (refer to the Picmonic on "Heparin (Unfractionated)).

Limit Flexion Positions

Flexion Limit-sign

At least two weeks following TKR surgery, instruct the patient to limit the amount of time spent in flexion positions that may lead to permanent flexion requiring surgical correction. Do not place pillows under the knees and avoid the knee gatch position.

Monitor for Infection

Monitor with Bacteria

Invasive procedures including TKR surgery places the patient at risk for infection. Implanted materials, such as a prosthetic plastic or metal device, allow infections to exist since the immune system is unable to attack bacteria on the implants. The localized infection may develop into a systemic infection. Sterile techniques and antibiotics are utilized to minimize the risk of infection. Monitor the patient for signs of infection such as swelling, redness, and pain. If the total knee replacement becomes infected, the operative site may become painful and require surgical removal of the prosthetic implant.