A PROTOCOL FOR HIP AND KNEE REPLACEMENT ACCORDING TO THE PRINCIPLES OF THE ERAS SOCIETY

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Objectives

The implementation of Enhanced Recovery after Surgery (ERAS) protocols has tremendously improved the patient’s postoperative outcome, which also reduced the length of the hospital stay (LOS), postoperative complications, and costs1. ERAS guidelines are available for various major visceral surgeries, but so far there is no ERAS protocol for hip and knee replacements. However, we have transferred the principles of Enhanced Recovery to our perioperative treatment of patients with hip and knee replacements and present the two-year experiences.

Method

A treatment protocol for patients with hip and knee replacement, called Rapid Recovery2, was implemented by the guidance of Zimmer Biomet3. According to the principles of the ERAS Society the multidisciplinary team approach focused on early postoperative mobilization and motivating the patient to become active. Consequences of this approach are specified for the different professions in the following overview.

Characterizing elements for the protocol were: a preoperative patient information event, a coach system, maximum soft tissue-sparing surgical techniques with infra-aneurysmal medication to control bleeding and swelling, high security against dislocation, the avoidance of drains, pain and bladder catheters, multimodal oral pain therapy, no movement restrictions, leaving the bed on the day of surgery, activating care, activity-directed physiotherapy, motivating for self-reliant training and functional discharge criteria from hospital.

Between 2016 and 2017, 805 patients underwent a joint replacement (311 hip replacements (HR) and 494 knee replacements (KR)) and were treated according to this protocol. The patient satisfaction was excellent (1.4), evaluated on a five-point Likert scale. With 111/132 points in the PPP-33 questionnaire4, patients gave us a very positive feedback. Compared to patients treated before, the LOS was reduced by 7.02 days (48%) for HR and by 5.92 days (44%) for KR. Adverse events like fracture, infection, pneumonia, cardiovascular complication, nerve injury, pulmonary embolism, deep leg vein thrombosis and other were 5.8% in HR and 3.2% in KR. Further results can be seen in Fig. 6.

Conclusions and next steps

The transfer of the principles of Enhanced Recovery to hip and knee replacements is possible and improves most likely the patient’s outcome. Our results encouraged us to extend the program and conduct PROMISE5, a prospective multicenter project, to evaluate our improvements. PROMISE evaluates 5000 patients from 3 hospitals over 3 years and is supported financially by the Innovationsfond of the Federal Joint Committee (G-BA) with € 5.1 million. Patient recruitment started in May 2018.

References

2. http://www.rapid-recovery.de/Hochzoll-Wilken
5. https://innovationsfond.de/g-iba/projekte/

Results

Anesthesia

- General anaesthesia, alternatively regional procedure with infra-aneurysmal spatial anaesthesia, eg Bilobaline 0.5% Intubation + Subflos IGF plus Bilobaline 0.5% – Caudal
- Intravenous administration of analgesics and sedatives and possible intravenous medication as necessary or pain medication
- No continuous infusions or PCA
- No intravenous pain therapy
- No pneumatic tourniquets

Surgery

- No pneumatic tourniquets
- Out as small as possible
- Use natural muscle gaps and work intraoperatively as possible
- Local infiltration anaesthesia (LIA) with 1:200,000 Bilobaline 0.2% with Ephedrine 6.25 µg/ml if necessary
- No drains
- No perineal catheters, if possible
- High location stability

Nursing

- Activating care
- Helping people for self-care
- Encouragement pilot test
- Early abstraction of hospital clothing
- Promotion of food at the table and bathroom use
- As far as possible independent body care
- Showers are possible from the first day after the operation
- Take mouth at the table (from the first day after the operation)
- No movement bans do exist
- No Continuous Passive Motion
- No physical or pain for covering the leg lying in band

Physiotherapy

- Helping people for self-care
- Encouragement pilot test
- Full load capacity directly postoperatively by using structures
- Set-up on the day of the operation
- Guidance on self-directive practice before therapy-guided mobilisation
- Movement bars do not exist
- No follow-ups or tests for covering the leg lying in band
- No invalids or pain for covering the leg lying in band

Fig. 1: Preoperative patient information event

Fig. 3: Leaving the bed on the day of surgery

Fig. 4: Outdoor walking group

Fig. 5: Micro-injury therapy

Fig. 6: Differences in Oxford Hip/Knee Score post- and three post-operative months in 137 participants of 334 patients treated with Rapid Recovery in 2017