The Bone & Joint Journal

Supplementary Material

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1. Functional screening and information module

Patients underwent, complementary to the medical screening performed by the anaesthesiologist, a functional screening with risk stratification on the domains of physical functioning, nutrition, and cognition. We have developed and implemented a preoperative screening tool to determine whether patients have an increased risk for delayed functional recovery during hospitalization. With information based on prediction data and the most recent literature, patients were informed about their situation in relation to their goals, expectancies, and intended surgery by presentation in an information module.

2. Early mobilization

We strived for early mobilization at the orthopaedic ward. Physical activity, training of functional transfers, and walking start within four hours after surgery. To take away perceived barriers in mobilization and patients' feeling of self-esteem, catheters were removed as soon as possible (< 24 hours after surgery).

3. Progression of functional recovery and personalized functional goal-setting and discharge criteria

The modified Iowa Levels of Assistance Scale (mILAS) is used to assess the amount of dependency on five activities (supine to sit, sit to supine, sit to stand, walking, and stair climbing) relevant to functional independence in daily living. The cumulative scores

range from 0 to 30, with scores of six or lower being considered to reflect recovery of physical functioning. Based on the mILAS scores, personalized functional goal-setting was introduced during hospitalization. This strategy encouraged patients to be more physically active and to achieve meaningful goals necessary for discharge home.

Discharge criteria, in addition to the altered elements noted in Table 1, encompassed several aspects. These criteria included wound care assessments to ensure healing progress, confirming patient understanding and adherence to postoperative medication, evaluating knee radiograph results to verify post-surgery alignment and positioning, assessing the availability of potential family support, and organizing transportation arrangements, primarily facilitated by family, friends, or a cab service for unaccompanied patients. Furthermore, arrangements were made with home care services for frail individuals to ensure ongoing support and care upon discharge. These comprehensive discharge criteria were integral in facilitating a safe and supported transition for patients returning home following total knee arthroplasty (TKA) surgery throughout the entire period of perioperative transitions in TKA care.

4. Nutritional management

In order to reduce inflammatory responses after surgery and to refrain from nausea due to preoperative starvation, we wanted patients to have an active digestive tract. Thus, patients received a glucose-rich beverage (400 ml preop) two hours before surgery.

5. Pain management in the pre-, intra-, and postoperative stage

Starting three days before surgery, patients received Gabapentin as preload pain medication. During surgery patients received short working anaesthetics (spinal, bupivacaine 0.5%) so that they were able to be physically active shortly after surgery. Further lowering of pain after surgery was reached by using local infiltration analgesics

(LIA) with a duration of four hours. After surgery, all patients received Gabapentin, paracetamol (Acetaminophen), and non-steroidal anti-inflammatory drugs. The use of patient-controlled analgesia went from standard advice to a rescue option.

6. Preoperative training for patients at risk of delayed functional recovery

During the preoperative screening we applied prediction on functional recovery (IROA). Patients with a risk of a delayed functional recovery after surgery were offered the option to undergo a functional training programme (Better In Better Out training principles) from a trained physiotherapist. Therefore, a regional collaboration between physiotherapy practices was created. The training sessions took place in the homes of patients. With 17 practices joining our network, along with guidelines based on evidence-based functional training principles, training for therapists, and regional meetings, patients within a 50 km radius of our hospital were able to receive the necessary therapy to prepare for surgery from the comfort of their homes.

7. Shared decision-making and the right moment of surgery

Based on the risk stratification and, with the instalment of a regional network of specialized physiotherapists, we were able to provide the option of home-based functional training in preparation of surgery. Since home-based functional training usually consists of six weeks' training, it meant for many of the patients who chose for the home-based training programme that the planned surgery had to be rescheduled to a later date. Examples of the choices that patients were facing were home-based functional training and rescheduling of the planned surgery. We deliberately chose to implement shared decision-making principles as a continuum of collaboration between the patient and healthcare professional within all of the necessary disciplines.

8. The RECORD statement – checklist of items, extended from the STROBE statement.

	Item No.	STROBE items	Location in manuscript where items are reported	RECORD items	Location in manuscript where items are reported
Title and abstract					
	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found	Page 2	RECORD 1.1: The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included. RECORD 1.2: If applicable, the geographic region and timeframe within which the study took place should be reported in the title or abstract. RECORD 1.3: If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract.	Page 2. Page 2. Not applicable.
Introduction					
Background rationale	2	Explain the scientific background and rationale for the investigation being reported	Page 4		
Objectives	3	State specific objectives, including any prespecified hypotheses	Page 4/5		
Methods					
Study Design	4	Present key elements of study design early in the paper	Page 5		
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Page 5/6/7		
Participants	6	*(a) Cohort study* - Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study* - Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study* - Give the eligibility criteria, and the sources and methods of selection of participants *(b) Cohort study* - For matched studies, give matching criteria and	Page 5 Not applicable	RECORD 6.1: The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided. RECORD 6.2: Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided. RECORD 6.3: If the study involved linkage of databases, consider use of a flow diagram or other graphical	Page 6. Page 6. Page 6.

		number of exposed and unexposed *Case-control study* - For matched studies, give matching criteria and the number of controls per case		display to demonstrate the data linkage process, including the number of individuals with linked data at each stage.	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.	Page 9	RECORD 7.1: A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be reported, an explanation should be provided.	Page 9.
Data sources/ measurement	8	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Page 9		
Bias	9	Describe any efforts to address potential sources of bias	Page 9/10		
Study size	10	Explain how the study size was arrived at	Page 9		
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	Page 9/10		
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) *Cohort study* - If applicable, explain how loss to follow-up was addressed *Case-control study* - If applicable, explain how matching of cases and controls was addressed *Cross-sectional study* - If applicable, describe analytical methods taking account of sampling strategy (e) Describe any sensitivity analyses	Page 9/10 Page 9/10 Page 10 Not applicable. Page 10		
Data access and cleaning methods		..		RECORD 12.1: Authors should describe the extent to which the investigators had access to the database population used to create the study population. RECORD 12.2: Authors should provide information on the data cleaning methods used in the study.	Figure 1, page 6. Page 9/10

Linkage		..		RECORD 12.3: State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided.	Figure 1, page 6.
Results					
Participants	13	(a) Report the numbers of individuals at each stage of the study (*e.g.*, numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed) (b) Give reasons for non-participation at each stage. (c) Consider use of a flow diagram	Page 12 Not applicable.	RECORD 13.1: Describe in detail the selection of the persons included in the study (*i.e.,* study population selection) including filtering based on data quality, data availability and linkage. The selection of included persons can be described in the text and/or by means of the study flow diagram.	Page 12 and an example in Figure 1.
Descriptive data	14	(a) Give characteristics of study participants (*e.g.*, demographic, clinical, social) and information on exposures and potential confounders (b) Indicate the number of participants with missing data for each variable of interest (c) *Cohort study* - summarise follow-up time (*e.g.*, average and total amount)	Page 12 Page 12 Page 12		
Outcome data	15	*Cohort study* - Report numbers of outcome events or summary measures over time *Case-control study* - Report numbers in each exposure category, or summary measures of exposure *Cross-sectional study* - Report numbers of outcome events or summary measures	Page 12		
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included (b) Report category boundaries when continuous variables were categorized (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	Page 13/14/15/16 Not applicable. Not relevant.		
Other analyses	17	Report other analyses done—e.g., analyses of	Page 13/14/15/16		

		subgroups and interactions, and sensitivity analyses			
Discussion					
Key results	18	Summarise key results with reference to study objectives	Page 17		
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Page 17/18	RECORD 19.1: Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they pertain to the study being reported.	Page 17/18
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page 17/18/19		
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page 17/18/19		
Other Information					
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Page 20		
Accessibility of protocol, raw data, and programming code		..		RECORD 22.1: Authors should provide information on how to access any supplemental information such as the study protocol, raw data, or programming code.	Page 20