

Functional outcomes and quality of recovery after anaesthesia and surgery - Outreaching towards protracted goals

Submitted: 23-Apr-2022

Revised: 29-Apr-2022

Accepted: 29-Apr-2022

Published: 17-May-2022

Ridhima Sharma, Syed Moied¹, Surendra Raikwar², Vikas Gupta³

Department of Paediatric Anaesthesia, Post Graduate Institute of Child health, Sector 30, Noida, Uttar Pradesh, ¹Department of Anaesthesia and Critical Care, J.N. Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh, ²Department of Anaesthesia, Gandhi Medical College, Bhopal, Madhya Pradesh, ³Department of Anaesthesia, Apollo Hospital, Indore, Madhya Pradesh, India

Access this article online
Website: www.ijaweb.org
DOI: 10.4103/ija.ija_356_22
Quick response code


Address for correspondence: Dr. Ridhima Sharma,
Department of Paediatric Anaesthesia, Post Graduate Institute of Child health, Sector 30, Noida, Uttar Pradesh, India.
E-mail: drridhimasharma@yahoo.com

The evaluation of the functional outcome and quality of recovery (QoR) after anaesthesia and surgery is a complex process, requiring a holistic multidimensional vision of resumption to the normality, based on the pre-illness standards analogy in multiple domains.^[1] The various domains needing emphasis include physiological, physical, psychological, economic, and social aspects. The ability to restore normal pursuit after discharge from the hospital should be recognised as one of the principal end points after anaesthesia and surgery.

Measurement of the patients' health status and quality of life is an integral aspect of clinical research, as it exemplifies, in part, the patients' perception of their outcome of recovery.^[2] Traditionally, in the context of postoperative 'recovery', researchers in anaesthesia and surgery have mainly focussed on recovery indices, such as pain, nausea, emotional or psychological distress, time to awakening, arrival in the recovery room, and thereafter, to discharge.^[3,4] All these measurements do not contribute much to the patients' notion of recovery, which embraces other attributes too such as the development of chronic pain, cognitive problems and the return of their activities to a level equivalent to that before surgery.^[5] Nevertheless, in a study comparing the analgesic efficacy of thoracic epidural block and erector spinae plane block in

breast cancer surgery, being published in this issue of the Indian Journal of Anaesthesia (IJA), the authors have expressed the need to conduct further studies on continuous nerve blocks to identify their effects on short and long-term outcome measures such as chronic pain and the quality of life.^[6]

Metrics of the functional outcomes and quality of recovery postoperatively

The recovery pathway in a patient can be mapped through the documentation of mortality/morbidity in the immediate days or weeks after surgery using QoR or postoperative morbidity survey and follow-up at home up to 30-days and then, disability-free survival on a long-term basis using the World Health Organization Disability Assessment Schedule (WHODAS) scale.^[7] Efforts to precisely measure and define improvement in the QoR after anaesthesia and surgery including the return of optimal functional capacity and psychological well-being, are extremely valued patient-oriented goals following surgery.^[8] Although patient-centred outcome metrics have been designed to measure a better QoR, 'Quality' is very subjective and everybody's perspective is different. While anaesthesiologists mainly focus on better pain relief and comfort after surgery, surgeons focus more on wound healing and early hospital discharge, whereas hospital administrators/funders focus on cost-effectiveness.^[9]

Three fundamental phases of recovery following anaesthesia and surgery have been described. These include the early period before discharge from the Post Anaesthesia Care unit (PACU), an intermediate period between admission to the surgical ward and discharge from the hospital, and a late phase from the hospital discharge until the return to usual function.^[10] Various scales, questionnaires and tests have been devised to measure different aspects of recovery in these various phases. These include the postoperative quality recovery scale (PQRS) appraising physiologic and biologic outcomes for the early phase, the QoR scale for the intermediate period and the 6-min walk test, short-form six dimensions (SF-6D), Community Health Activities Model Program for Seniors, or EuroQol Five Dimensions (EQ-5D) for the late phase.^[11]

QoR scales provide a quantitative measurement of the overall health status after surgery and anaesthesia. Although various QoR scales have been developed, the 9-item QoR score, 15-item QoR-15 scale, and the 40-item QoR-40 scale are the most extensively studied scores.^[12]

QoR-40 scale is a global comprehensive metric of a patient's overall recovery and primarily includes five dimensions of health, cardinal to the peri-operative settings including physical comfort emotional items, physical independence and psychological support. QoR-40 scale has been extensively validated in many hospitals and countries around the world. The reliability of QoR-15 is comparable with the QoR-40 scale but is responsive more to change.^[12] Hence, both the scales are recommended as outcome measures in research based on patient comfort postoperatively. Nevertheless, in a study published in a past issue of the IJA, the authors have compared the effect of erector spinae block and pectoralis block on QoR using the QoR-40 scale and concluded that the global QoR-40 at 24 h shows a significantly better outcome via providing an efficacious analgesia regimen.^[13]

WHODAS 2.0 is an easy scale, with excellent psychometric properties and can be self-reported via proxy, telephone-based versions in around 5 min, along with the easy availability on public platforms.^[14]

In a randomised study^[15] on postoperative pain relief and functional outcome in patients undergoing spinal laminectomy, being published in this issue of the IJA, the functional outcome has been assessed using two questionnaires; the Oswestry Disability Index (ODI)

and Rolland Morris Disability Questionnaire (RMDQ) in the preoperative period, and at 1 month and 3 months, postoperatively. The authors found statistically significant clinical improvement in RMDQ and ODI scores at all-time intervals between both the groups ($P < 0.05$). A four-point difference in ODI during subsequent months represents a true change and the results of the study show an outstanding improvement of 9–11 points at 1 and 3 months from the baseline.

Nowadays, biomarkers are making their mark in various aspects of health care and are being used in the evaluation of functional recovery and to diagnose functional recovery potential in various conditions.^[16] Clinically useful and reliable biomarkers to predict and assess postoperative functional outcomes are being researched upon. Various easy-to-use web-based digital clinical outcomes assessment tools such as the Postoperative Quality of Recovery Scale (Postop QRSTM) are being used in the west by hospital clinicians and managers to assess immediate patient recovery and long-term follow-up and thereby improve patient outcomes.^[17]

Using PROMS to improve the quality of recovery

Patient-reported outcome measures (PROMS) assay the stance of the patient and present an upshot that matters more relevant to a patient including the impact of the surgery or any procedure on their daily activities and self-care.^[18]

In the research conducted by Leiss *et al.*, the authors concluded that the patients who participated in an enhanced recovery concept proclaimed to have high patient satisfaction after surgery. Also, during a follow-up after 1-month and 1-year, functional scores increased to excellent values. Furthermore, PROMS appeared to help surgeons and patients to amend expectations of the surgery and revamp satisfaction of the patient.^[19] The American Pain Society has already emphasised that the assessment of patient satisfaction is pre-eminent in improving their quality of life and should be surveyed in clinical research; consequently, a satisfied patient would be more compliant with the treatment and thereby has more probability of early recovery.^[20]

There exist various health care systems that have been routinely using patient feedback outcome measures pre and post-surgery and eventually have helped in evolving better patient-oriented results. In PROMS research, the authors concluded very important

implications for using it in clinical decision-making. They also recommended that in the near future, this large-scale PROM collection could serve as a natural forum to utilise this information in the health care system.^[21]

As functional recovery of patients' daily activities is a subjective assessment, it is pivotal to include the patient perspective in the assessment. Hence, for the measurement of any subjective-based metric, vigorous methodology testing for validity and reliability would be required, as, reliability is an important aspect in QoR instrument development. Unfortunately, neither do the existing tools for measuring functional outcomes and QoR include all the parameters, nor are they specifically designed in a patient-centric manner. The use of standardised instruments across clinical trials for anaesthesia and surgery can allow better measurement of outcomes. Thus, there is a need for the designing of valid and reliable patient-centric tools specifically in this regard.

The monitoring of the quality of the patients' recovery can provide an opportunity for the institution in improving its quality of care through standardisation of treatment, procedures, and protocols.^[22] The national surgical quality improvement programme advocated the use of specific interventions to decrease the magnitude of adverse post-surgical events including scrupulous protocol enforcement, early nutrition institution, and other healthcare improvement bundles.^[23] The formulation of a quality control team consisting of anaesthesiologists, surgeons, nursing leaders, intensivists and other concerned personnel in an institution and the conduct of monthly meetings focussing mainly on data analysis, critical incident reporting, adherence to protocols, patients' satisfaction, and long-term follow-up to assess the functional recovery after the surgery is very important.

Ultimately, patients with poor QoR can harm the health care system and it is important to evaluate patients' recovery after surgery and anaesthesia in a patient-centric manner. Nonetheless, the number of surgeries and complexity of surgeries is increasing nowadays and so is the enthusiasm amongst surgeons and anaesthesiologists to adopt fast track recovery and enhanced recovery after surgery (ERAS) protocols.^[24] At this juncture, a thought creeps up in our minds ... Are we smitten by the ERAS bug? Are we forgetting to match our anaesthesia techniques and perioperative management to long-term perioperative goals such as

the quality of life and functional outcomes?

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Ghai B, Gudala K, Asrar MM, Chanana N, Kanukula R, Bansal D. Development, validation and evaluation of a novel self instructional module in patients with chronic non specific low back pain. *Indian J Anaesth* 2020;64:299-305.
- Arya S, Langston AH, Chen R, Sasnal M, George EL, Kashikar A. Perspectives on home time and its association with quality of life after inpatient surgery among US veterans. *JAMA Network Open* 2022;4:e2140196.
- Bakshi SG, Rathod A, Salunkhe S. Influence of interpretation of pain scores on patients' perception of pain: A prospective study. *Indian J Anaesth* 2021;65:216-20.
- Sharma R, Saxena A, Magoon R, Jain MK. A cross-sectional analysis of prevalence and factors related to depression, anxiety, and stress in health care workers amidst the COVID-19 pandemic. *Indian J Anaesth* 2020;64:242-4.
- Bajwa SJ, Jindal R. Quality control and assurance in anesthesia: A necessity of the modern times. *Anesth Essays Res* 2014;8:134-8.
- Karoo K, Kumar M, Sinha M, Nilima N. A randomised prospective single-blind pilot study to compare the analgesic efficacy of thoracic epidural block and erector spinae plane block in breast cancer surgery. *Indian J Anaesth* 2022;66:S148-53.
- Joosten A, Delaporte A, Mortier J, Ickx B, Van Obbergh L, Vincent J-L, *et al.* Long-term impact of crystalloid versus colloid solutions on renal function and disability-free survival after major abdominal surgery. *Anesthesiology* 2019;130:227-36.
- Myles PS. Measuring quality of recovery in perioperative clinical trials. *Curr Opin Anesthesiol* 2018;31:396-401.
- Porter ME, Lee TH. From volume to value in health care: The work begins. *J Am Med Assoc* 2016;316:1047-8.
- Léger M, Campfort M, Cayla C, Lasocki S, Rineau E. Postoperative quality of recovery measurements as endpoints in comparative anaesthesia studies: A systematic review. *Br J Anaesth* 2021;126:e210-2.
- Phyo AZ, Freak-Poli R, Craig H, Gasevic D, Stocks NP, Gonzalez-Chica DA, *et al.* Quality of life and mortality in the general population: A systematic review and meta-analysis. *BMC Public Health* 2020;20:1596-97.
- Lee JH, Ki M, Choi S, Woo CJ, Kim D, Lim H, *et al.* Validity and reliability of the Korean version of the Quality of Recovery-15 questionnaire. *Korean J Anesthesiol* 2021;74:142-9.
- Mohsin Md H. Effect of erector spinae block and PECS block on quality of recovery and analgesia after modified radical mastectomy. *Indian J Anaesth* 2022;66:S58-9.
- Spies CD, Krampe H, Paul N, Denke C, Kiselev J, Piper SK, *et al.* Instruments to measure outcomes of post-intensive care syndrome in outpatient care settings-Results of an expert consensus and feasibility field test. *J Intensive Care Soc* 2021;22:159-74.
- Bhardwaj M, Jindal P, Srivastava A, Tiwari B. Postoperative pain relief and functional outcomes after pre-emptive ultrasound-guided caudal analgesia in patients undergoing spinal laminectomy under general anaesthesia: Comparison between bupivacaine versus bupivacaine with morphine. *Indian J Anaesth* 2022;66:S154-60.
- Malviya D, Bajwa SJ, Kurdi MS. Striving towards excellence in research on biomarkers. *Indian J Anaesth* 2022;66:243-7.

17. Jildenstal P, Eriksson J, Warren Stomberg M, Jakobsson JG. Evaluation of the Postoperative Quality of Recovery Scale test and re-test in Swedish among healthy volunteers. *F1000Res* 2016;5:2549.
18. Bansback N, Trenaman L, MacDonald KV, Hawker G, Johnson JA, Stacey D, *et al.* An individualized patient-reported outcome measure (PROM) based patient decision aid and surgeon report for patients considering total knee arthroplasty: Protocol for a pragmatic randomized controlled trial. *BMC Musculoskeletal Disord* 2019;20:89-90.
19. Leiss F, Götz JS, Maderbacher G, Meyer M, Reinhard J, Zeman F, *et al.* Excellent functional outcome and quality of life after primary cementless total hip arthroplasty (THA) using an enhanced recovery setup. *J Clin Med* 2021;10:621.
20. Chaw SH, Lo YL, Lee JY, Wong JW, Zakaria WA, Ruslan SR, *et al.* Evaluate construct validity of the revised american pain society patient outcome questionnaire in gynecological postoperative patients using confirmatory factor analysis. *BMC Anesthesiol* 2021;21:20.
21. Kluzek S, Dean B, Wartolowska KA. Patient-reported outcome measures (PROMs) as proof of treatment efficacy. *BMJ Evid Based Med* 2021;220:111573.
22. Kumar L, Dominic M, Rajan S, Singh S. Impact of modified quality control checklist on protocol adherence and outcomes in a post-surgical intensive care unit. *Indian J Anaesth* 2017;61:29-35.
23. Vos EL, Russo AE, Hohmann A, Yoon SS, Coit DG, Ko CY, *et al.* Performance of the American college of surgeons NSQIP surgical risk calculator for total gastrectomy. *J Am Coll Surg* 2020;231:650-6.
24. Bajwa SJ, Jain D, Anand S, Palta S. Neural blocks at the helm of a paradigm shift in enhanced recovery after surgery (ERAS). *Indian J Anaesth* 2021;65:99-103.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

How to cite this article: Sharma R, Moied S, Raikwar S, Gupta V. Functional outcomes and quality of recovery after anaesthesia and surgery - Outreaching towards protracted goals. *Indian J Anaesth* 2022;66:S133-6.

Announcement

Old Issues of IJA

Limited copies of old issues of IJA from 2013 are available in IJA office. Members interested can contact Immediate Past Editor In Chief (editorija@yahoo.in/ijadivatia@gmail.com / 98690 77435)