



Editorial

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Predictors and indicators

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In the current issue of the *Korean Journal of Anesthesiology* (KJA), prediction-related words such as impact, predict, assessing, indicator, association, and effect are included in the titles of clinical research papers. Ju et al. [1] reported that COVID-19 infections eight weeks preoperatively were associated with an increase in the 30-day postoperative mortality. In the study conducted by Park et al. [2], a machine learning model constructed using facial expressions was a superior predictor of severe postoperative pain (numeric rating scale [NRS] ≥ 7), outperforming models constructed from physiological signals. Jang et al. [3] reported that a frequency-domain analysis of photoplethysmography and arterial blood pressure may assess hemodynamic status requiring fluid or vasoactive inotropic therapy after congenital heart surgery. Kim et al. [4] reported that the development of ventricular-arterial decoupling is associated with poor postoperative outcomes after liver transplantation. Preoperative acute hyperglycemia was found to be associated with postoperative delirium in the study by Park et al. [5]. Finally, Lee et al. [6] reported that applying ultrafiltration improved clot firmness, with more pronounced improvement when pre-ultrafiltration maximum clot firmness-extrinsically activated test with tissue factor was reduced using cardiopulmonary bypass.

If anesthesiologists could make accurate predictions, patients could be diagnosed and treated earlier, thus improving postoperative outcomes. A predictor is defined as something such as an event or fact that enables one to anticipate a future occurrence. An indicator is a specific, measurable or observable characteristic, or trait, that is used to show progress or something that has happened. Research studies aimed at discovering appropriate predictors or indicators to improve postoperative outcomes are continuously being conducted.

In the current issue of the KJA, Park et al. [5] investigate the relationship between hyperglycemia and postoperative delirium. In that study, acute hyperglycemia was defined as at least one fasting blood glucose level > 140 mg/dl or a random blood glucose level > 180 mg/dl within 24 h before surgical incision. Chronic hyperglycemia was defined as an HbA_{1c} level $> 6.5\%$ within three months before surgery. Postoperative delirium is diagnosed by a psychiatrist using the Confusion Assessment Method. Among the patients in the acute hyperglycemia group, the ratio of chronic kidney disease to intraoperative transfusion was considerably higher than that in the no acute hyperglycemia group. Park et al. [2] investigated a machine learning model of facial expressions and outperformed models using the analgesia nociception index and vital signs to predict postoperative pain intensity. In that study, 155 facial expressions, analgesia nociception index scores, vital signs, and self-assessed pain intensity based on the NRS were recorded postoperatively in patients who underwent gastrectomy.

Anesthesiologists should consider the importance of preoperative evaluations, predictors, and indicators for improving postoperative outcomes.

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Conflicts of Interest

No potential conflict of interest relevant to this article was reported.

References

1. Ju JW, Kim T, Yoon SH, Kim WH, Lee HJ. The impact of preoperative coronavirus disease 19 infection on early postoperative mortality during the vaccination era: a nationwide retrospective cohort study. *Korean J Anesthesiol* 2024; 77: 185-94.
2. Park I, Park JH, Yoon J, Na HS, Oh AY, Ryu JH, et al. Machine learning model of facial expression outperforms models using analgesia nociception index and vital signs to predict postoperative pain intensity: a pilot study. *Korean J Anesthesiol* 2024; 77: 195-204.
3. Jang HY, Song IK, Kim SH, Shin WJ. Frequency domain analysis of photoplethysmographic and arterial pressure waveforms for assessing hemodynamics in children with congenital heart surgery. *Korean J Anesthesiol* 2024; 77: 205-16.
4. Kim JY, Moon YJ, Lee C, Kim JH, Park J, Kim JW. Postoperative alterations in ventriculoarterial coupling are an indicator of cardiovascular outcomes in liver transplant recipients. *Korean J Anesthesiol* 2024; 77: 217-25.
5. Park SJ, Oh AR, Lee JH, Yang K, Park J. Association of preoperative blood glucose level with delirium after non-cardiac surgery in diabetic patients. *Korean J Anesthesiol* 2024; 77: 226-35.
6. Lee J, Lee DK, Kwon WK, Lee S, Oh CS, Görlinger K, et al. Effect of ultrafiltration on whole blood coagulation profile during cardiopulmonary bypass in cardiac surgery: a retrospective analysis. *Korean J Anesthesiol* 2024; 77: 236-45.