Construction and evaluation of the nomogram for predicting unintentional intraoperative hypothermia in patients undergoing open abdominal surgery

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Background: Unintentional intraoperative hypothermia (core temperature <36°C) is a common surgical complication that seriously affects patients' perioperative recovery. The purpose of this study was to investigate the risk factors for unexpected intraoperative hypothermia in open abdominal surgery, construct a nomogram to predict unexpected intraoperative hypothermia based on the risk factors and validate the predictive efficacy.

Methods: The baseline and perioperative information of 2184 patients who underwent open abdominal surgery was included from at XX Hospital between January 2015 to June 2023. All patients were divided into a development cohort and a validation cohort in a 6:4 ratio. Univariate and multivariate logistic regression were used to analyze the risk factors for unintentional intraoperative hypothermia in patients undergoing open abdominal surgery. R tools were used to construct column-line graphical prediction models. Subject work characteristics (ROC) curves were used to analyze the discriminability of the column-line diagrams. Calibration curves were drawn to compare the predictive and observational effects of the column-line diagrams. Decision curve analysis (DCA) was used to assess the clinical validity of the column chart.

Results: The nomogram consisted of six features including age, BMI, surgical site, application of warming measures, and duration of surgery. ROC curves for the predicting nomogram indicated good discrimination in the development (AUC = 0.885, 95% CI 0.854-0.916) and validation cohort (AUC = 0.857, 95% CI 0.821-0.893). The calibration curves indicated that the prediction of the nomogram agreed well with the actual observation. Moreover, the DCA curves determined the clinical application value of predictive nomogram.

Conclusions: Risk factors for unexpected intraoperative hypothermia include age, BMI, surgical site, application of warming measures, and duration of surgery. We constructed nomograms that can help clinicians more accurately predict the occurrence of unintentional intraoperative hypothermia in open surgery before surgery.

Biography

Mao Xiuli, female, born in 1982.11.17, bachelor degree, main research direction of operating room nursing, with many years of experience in operating room nursing management.

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