

# Development and validation of a comprehensive model to predict the risk of severe complications after hepatectomy

## Background



### Prediction models to estimate the risk of poor postoperative outcomes

- Hepatectomy is associated with a high risk for postoperative complications.
- There is a lack of predictive models for post-hepatectomy complications that cover postoperative parameters routinely measured in patients admitted to the ICU at the end of surgery.

### QUESTION :

Which factors -including preoperative, intraoperative, and postoperative parameters- can be included in a nomogram to predict the individual risk of developing severe complications according to the Clavien-Dindo classification ( $\geq 3a$ )?

## Setting & Population

Patients undergoing elective hepatectomy from December 2016 to June 2022.



### Retrospective observational study

High-volume tertiary care center for hepatic surgery.

#### Inclusion criteria:

- Age  $\geq 18$  years
- Admission to the intensive care unit (ICU) after surgery

#### Exclusion criterium:

- Patients with incomplete data

## Measurements

### PRIMARY END-POINT

- Assessing predictive factors of 30-day severe postoperative complications following hepatectomy, defined as Clavien-Dindo grade 3a or higher.

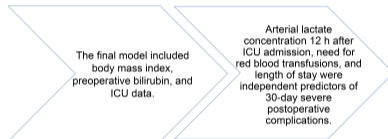
### SECONDARY END-POINT

- Developing an easy-to-use scoring system to estimate the risk of severe postoperative complications based on nomograms.

## Results

A total of 411 patients were analyzed.

Severe complications occurred in 78 patients (19%).



The model showed an overall good fitting (C-index 0.754, with a corrected Dxy of 0.692).

## Conclusions

We finally developed an accurate and practical scoring system based on preoperative, intraoperative, and early postoperative data to predict early outcome following hepatectomy.