

# 建立风险模型

2024-03-12

LiChuang Huang



@ 立效研究院

## Contents

<b>1</b>	<b>摘要</b>	<b>1</b>
<b>2</b>	<b>前言</b>	<b>1</b>
<b>3</b>	<b>材料和方法</b>	<b>1</b>
3.1	材料 . . . . .	1
3.2	方法 . . . . .	1
<b>4</b>	<b>分析结果</b>	<b>1</b>
<b>5</b>	<b>结论</b>	<b>1</b>
<b>6</b>	<b>附：分析流程</b>	<b>1</b>
6.1	数据预处理 . . . . .	1
6.2	结果 . . . . .	1

## List of Figures

1	Heart Nomogram plot . . . . .	2
2	Heart Bootstrap calibration . . . . .	3
3	Heart ROC . . . . .	4

## List of Tables

1 摘要

2 前言

3 材料和方法

3.1 材料

3.2 方法

Mainly used method:

- R package pROC used for building ROC curve.
- R package rms used for Logistic regression and nomogram visualization.
- R version 4.3.2 (2023-10-31); Other R packages (eg., dplyr and ggplot2) used for statistic analysis or data visualization.

4 分析结果

5 结论

6 附：分析流程

6.1 数据预处理

6.2 结果

Logistic Regression Model

rms::lrm(formula = formula, data = data, x = T, y = T)

{

		Model Likelihood		Discrimination		Rank Discrim.	
		Ratio Test		Indexes		Indexes	
Obs	390	LR $\chi^2$	357.02	$R^2$	0.833	$C$	0.974
No arrhythmia	260	d.f.	7	$R^2_{7,390}$	0.592	$D_{xy}$	0.948
Arrhythmia	130	$\Pr(> \chi^2) < 0.0001$		$R^2_{7,260}$	0.740	$\gamma$	0.948
$\max  \frac{\partial \log L}{\partial \beta} $		$1 \times 10^{-5}$		Brier	0.053	$\tau_a$	0.423

}

	$\hat{\beta}$	S.E.	Wald Z	$\Pr(>  Z )$
Intercept	-16.6589	3.5388	-4.71	<0.0001
Diastolic blood pressure (mmHg)	-0.0582	0.0189	-3.08	0.0021
Cardiac_function_classification=III-IV level	2.1983	0.4797	4.58	<0.0001

	$\hat{\beta}$	S.E.	Wald Z	Pr(>  Z )
Creatinine ( mol/L)	0.0668	0.0191	3.49	0.0005
CRP (mg/L)	0.3679	0.0805	4.57	<0.0001
NT-ProBNP peak (pg/mL)	0.0059	0.0009	6.92	<0.0001
TBIL ( mol/L)	0.0752	0.0335	2.25	0.0247
RDW (%)	0.1389	0.0572	2.43	0.0152

Figure 1 (下方图) 为图 heart Nomogram plot 概览。

(对应文件为 **Figure+Table/heart-Nomogram-plot.pdf**)

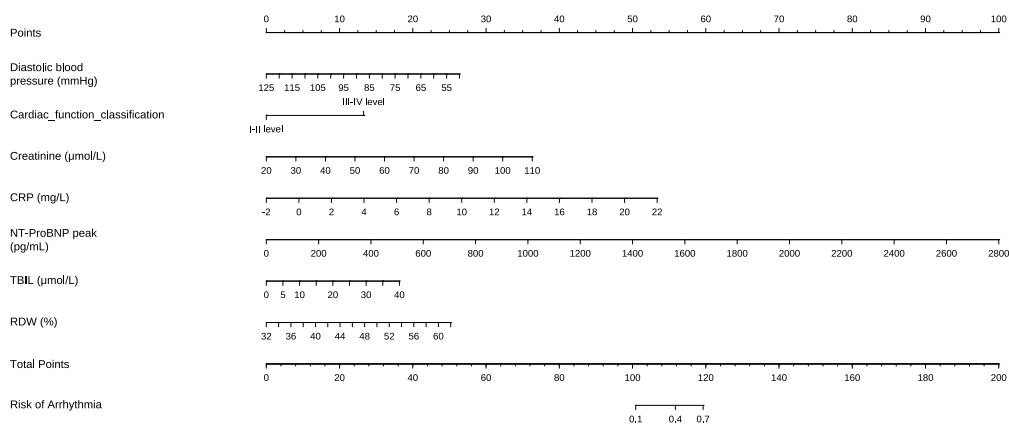


Figure 1: Heart Nomogram plot

Figure 2 (下方图) 为图 heart Bootstrap calibration 概览。

(对应文件为 **Figure+Table/heart-Bootstrap-calibration.pdf**)

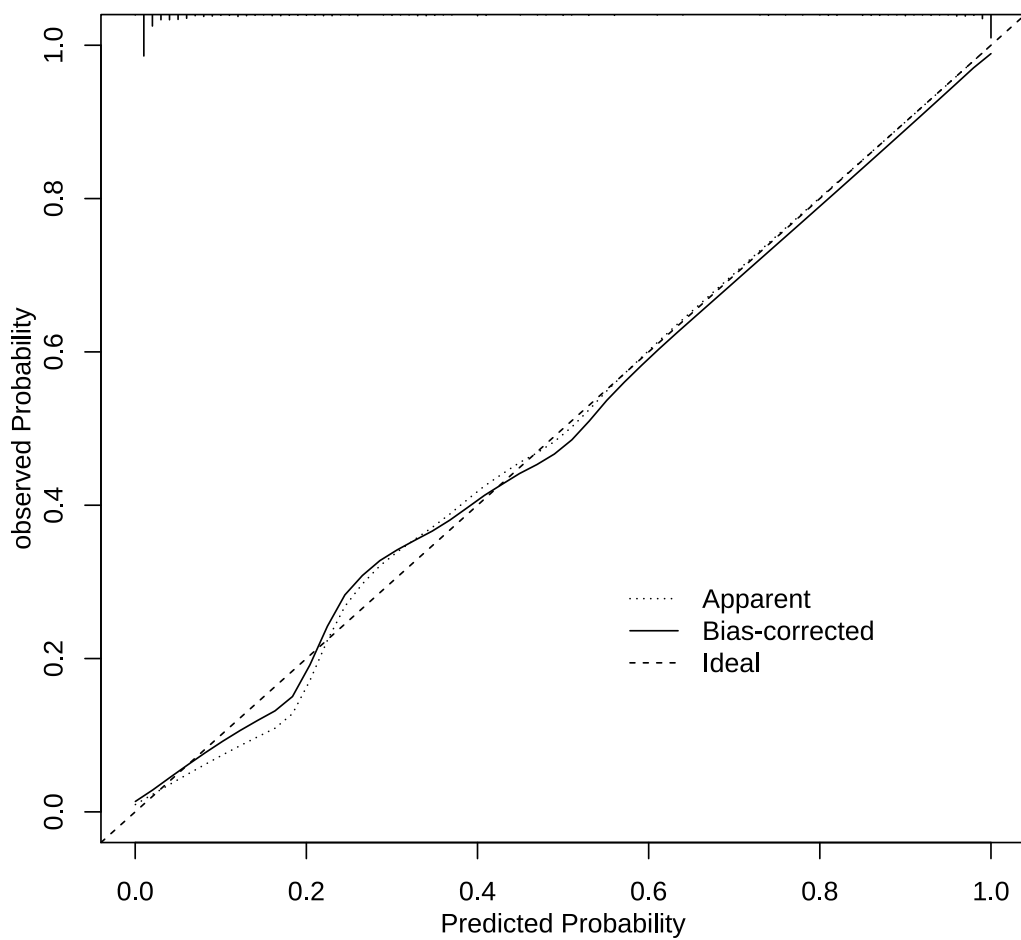


Figure 2: Heart Bootstrap calibration

Figure 3 (下方图) 为图 heart ROC 概览。

(对应文件为 **Figure+Table/heart-ROC.pdf**)

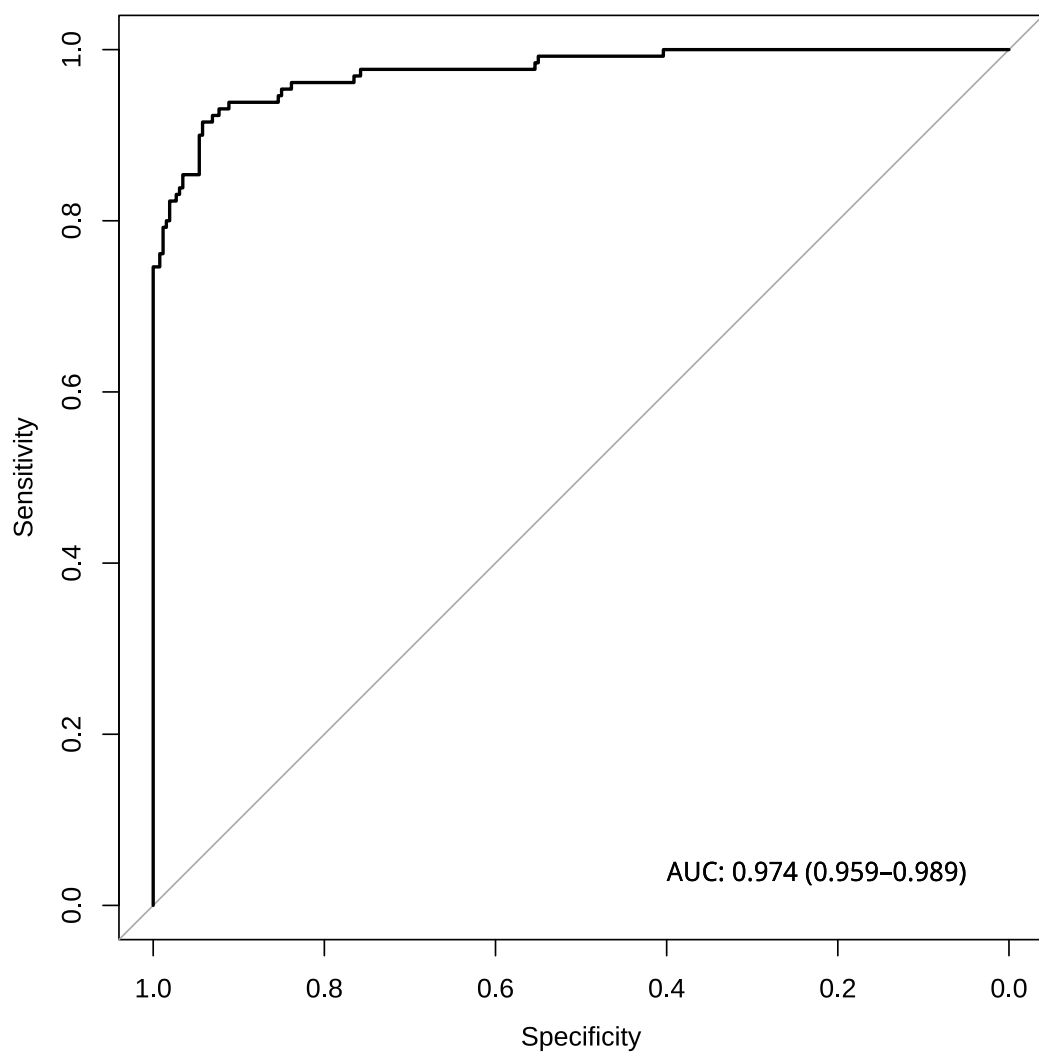


Figure 3: Heart ROC