

Are the ERASL models valid?

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INTRODUCTION

Risk assessment of early recurrence of hepatocellular carcinoma (HCC) informs decisions-making regarding:

- Treatment modality
- (Neo) adjuvant chemotherapy
- Intensity of the follow-up

Chan et al. published promising preoperative (ERASL-pre) and postoperative (ERASL-post) risk scores¹.

These models have not yet been externally validated by an independent research group.

AIM

- 1) Assess the discrimination and calibration
- 2) Recalibrate the models for local use

RESULTS

- The prognostic profiles were similar (Figure1)
- The discriminatory power of both models was lower in the NL compared to JP, and lower in the ERASL-pre model compared to the ERASL-post model (Table 1)
- Addition of Hepatitis C or B to the model did not explain the NL-JP difference
- Predictions are systematically too optimistic (Figure2)
- Recalibrated ERASL scores improved local applicability (Figure2)

Discrimination C-index [95%CI]

	Rotterdam	Okayama
ERASL-pre	0.57 [0.51; 0.63]	0.69 [0.65; 0.73]
ERASL-post	0.62 [0.56; 0.68]	0.70 [0.66; 0.74]

Table 1

Prognostic profiles

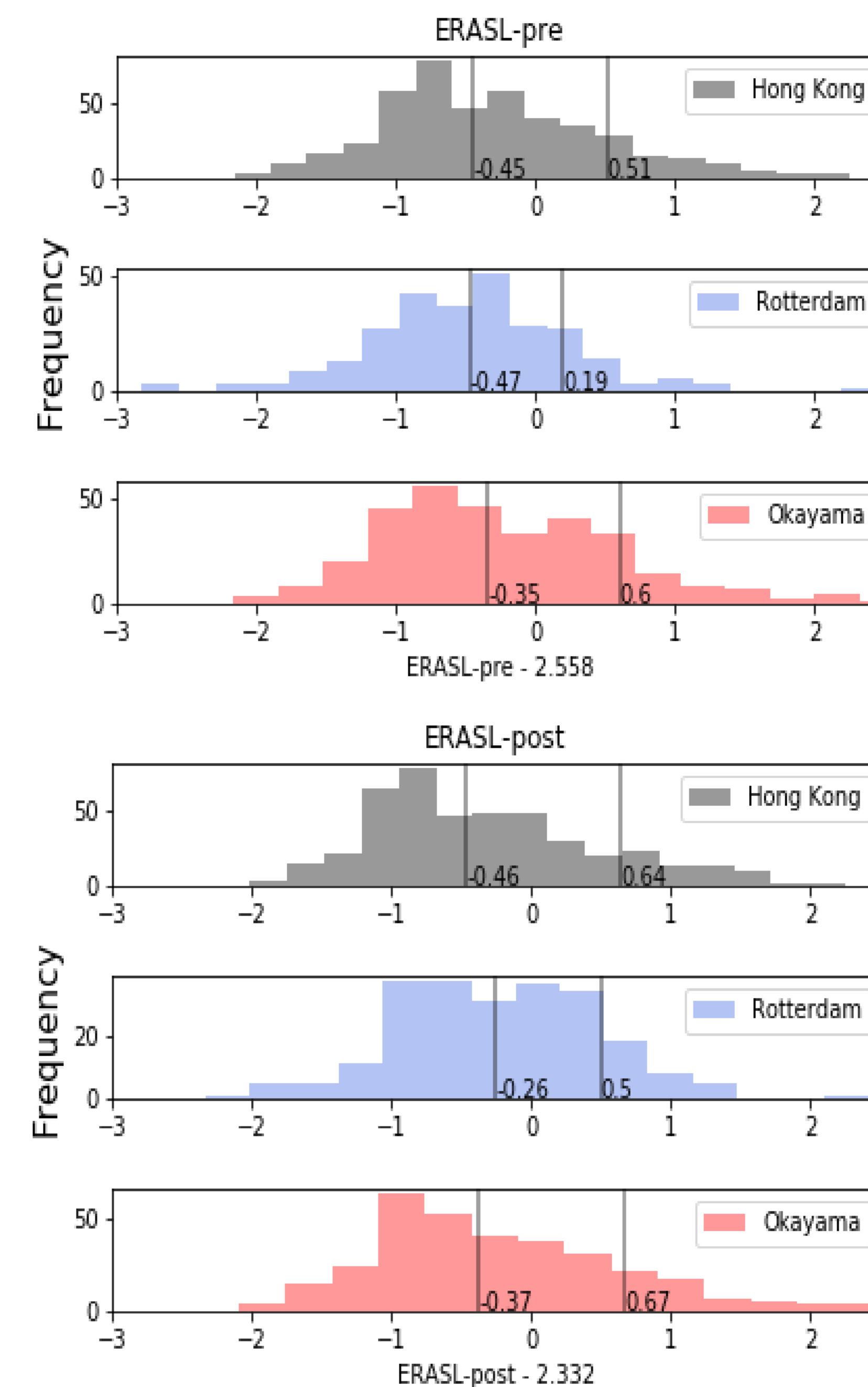


Figure 1: The scores are centred on the median values described in the paper by Chan et al. In each histogram the left and right black lines represent the 50th and 85th percentile, respectively.

Prediction and recalibration

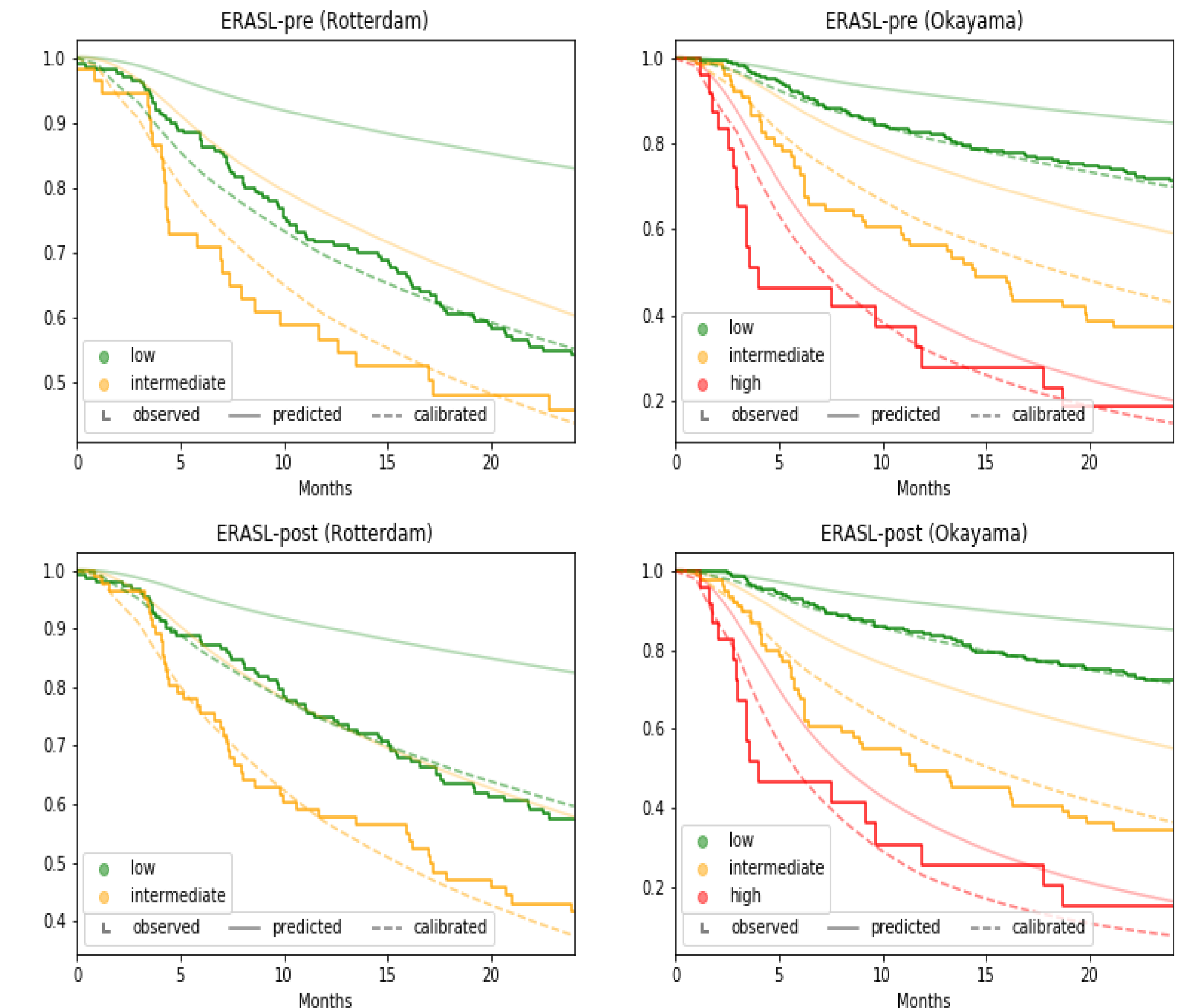


Figure 2: The smooth solid lines represent the average predictions per risk group from the original model. The dashed curves represent the calibrated survival probabilities

METHOD

Patients:

- First time resection with curative intent and pathologically confirmed HCC
- 279 patients from the Netherlands (NL)
- 392 patients from Japan (JP)

Validation²

- Misspecification: Inspect differences after re-estimation
- Discrimination: Calculate the C-index
- Calibration: Compare predicted vs observed
- Recalibration: Encapsulate the ERASL models in a Weibull calibration model³

CONCLUSIONS

- The discrimination is limited in Western patients, in contrast to Japan where good performance was found
- Recalibration of the models improved the accuracy of predictions for individual patients
- A model that explains the East-West difference or one that is tailored to Western patients still needs to be developed

REFERENCES

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