

Performance of novel collagen turnover biomarkers in comparison to FIB-4 to detect increased liver stiffness in MASLD

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Conclusion

- The ADAPT score performs slightly better than FIB-4 in detecting patients with an LSM >8kPa.
- There was no difference in performance between FIB-4 and ADAPT to detect patients with an LSM >12 kPa.
- The added clinical value of ADAPT was uncertain. The net benefit between FIB-4 and ADAPT depends based on clinical context and the population.
- We suggest that FIB-4 remains as the first-line test to identify patients with more advanced disease and LSM >12 kPa.

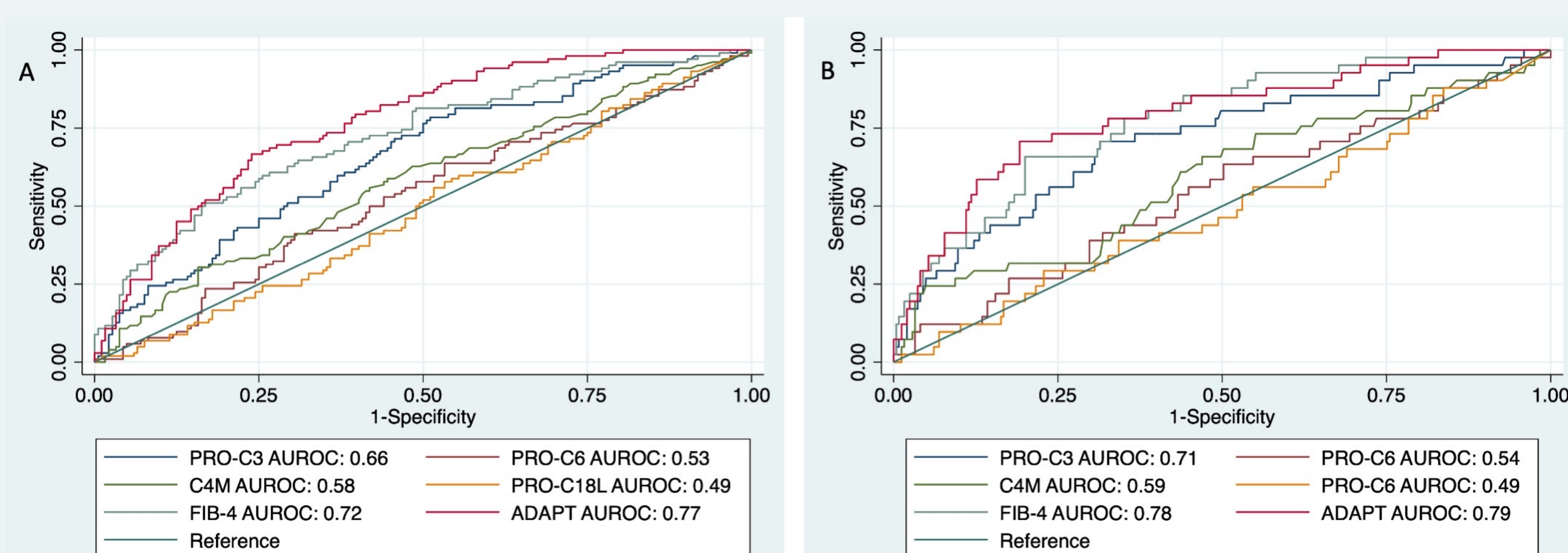


Figure 1. Area under the receiver operating characteristic curve (AUROC) for PRO-C3, PRO-C6, C4M, PRO-C18L, ADAPT and FIB-4 for detecting patients with metabolic dysfunction-associated steatotic liver disease with (A) an LSM >8 kPa, and (B) with an LSM >12 kPa.

Introduction

The cleavage products from different types of collagens that reflect the formation and degradation of fibrosis are potential novel biomarkers to detect increased liver stiffness measurement (LSM) in patients with metabolic dysfunction-associated steatotic liver disease (MASLD).

Aim

To assess the performance of biomarkers PRO-C3, PRO-C6, C4M, PRO-C18L, and ADAPT, a score based on PRO-C3 and clinical parameters, and FIB-4 to detect an LSM >8kPa or >12 kPa.

Method

- Patients with MASLD from a prospective cohort from six Swedish university hospitals (n=298).
- Collagen turnover biomarkers PRO-C3, PRO-C6, C4M and PRO-C18L were analyzed with ELISA based method at Nordic Bioscience, Denmark. Blood samples were collected within a week of LSM.
- The area under the receiver operating characteristic curve (AUROC), calibration curves, and net benefit analysis were calculated for all biomarkers.

Results

- The prevalence of patients with and LSM >8 kPa was 36.2% (n=108). The prevalence of patients with and LSM >12 kPa was 15.1% (n=45).
- The ADAPT score had the highest AUROC of 0.77 (95%CI=0.72–0.82) to detect patients >8kPa. FIB-4 had an AUROC 0.72 (95%CI=0.66–0.79), **Figure 1A**
- The discriminatory ability of ADAPT and FIB-4 to detect patients with an LSM >12 kPa were similar (AUROC 0.79 vs. 0.78, p=0.69), **Figure 1B**
- FIB-4 was better calibrated than ADAPT to detect patients with an LSM >8 kPa. Both FIB-4 and ADAPT tended to overestimate the risk of an LSM >12 kPa in patients with predicted probability over 60%, **Figure 2**
- The net benefit of ADAPT and FIB-4 was better than doing VCTE in all to detect patients with an LSM >8 kPa at a threshold probability of 20%. ADAPT and FIB-4 had equal net benefit to detect patients with an LSM >12 kPa at a threshold probability of 10%, **Figure 3**.

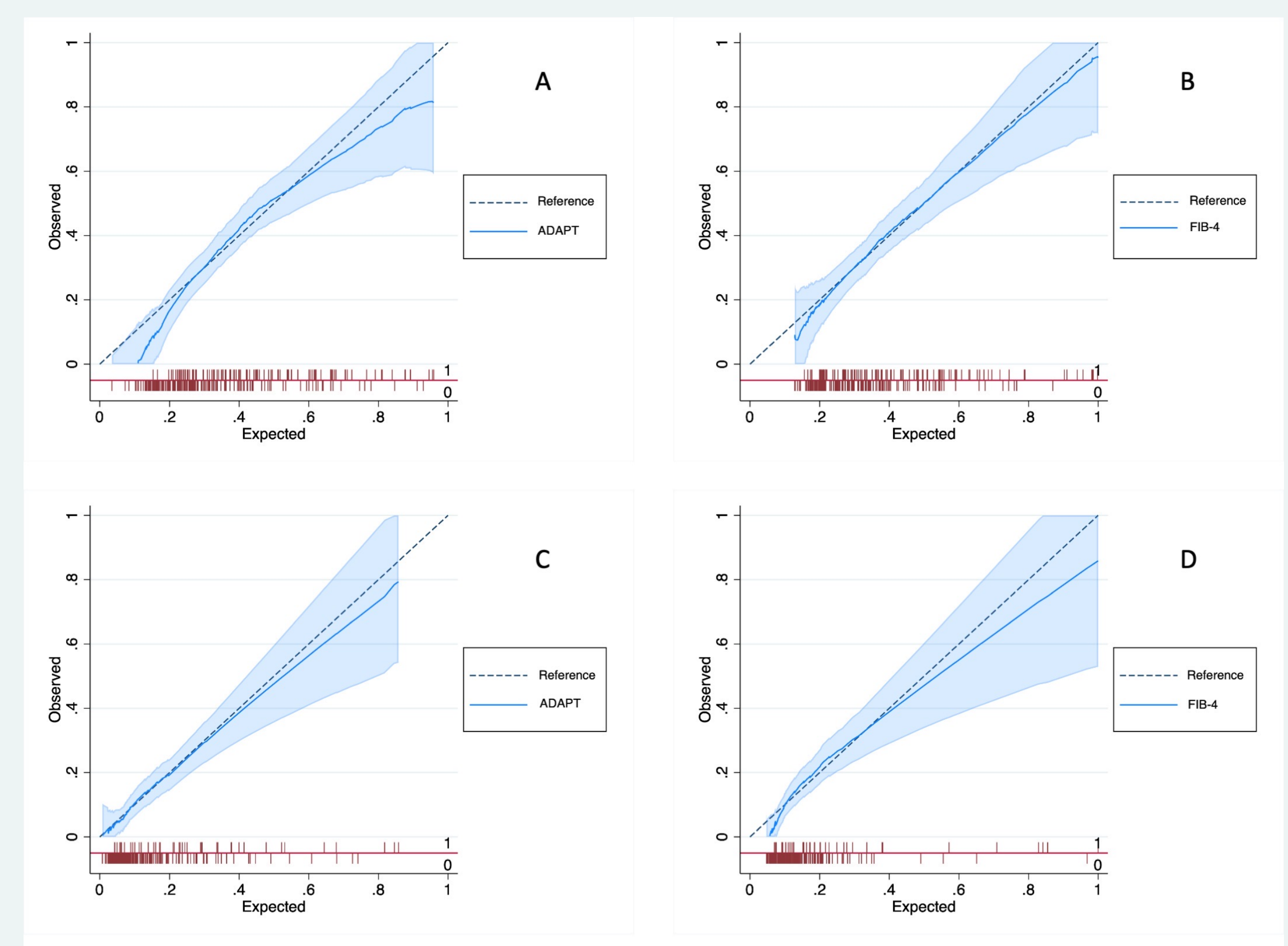


Figure 2. Calibration curves of ADAPT (A and C) and FIB-4 (B and D) and ADAPT (B) in detecting patients with a liver stiffness measurement (LSM) >8 kPa (A and B) and >12 kPa (C and D). Y-axis is observed risk of an LSM >8 kPa. X-axis is predicted risk of an LSM >8 kPa.

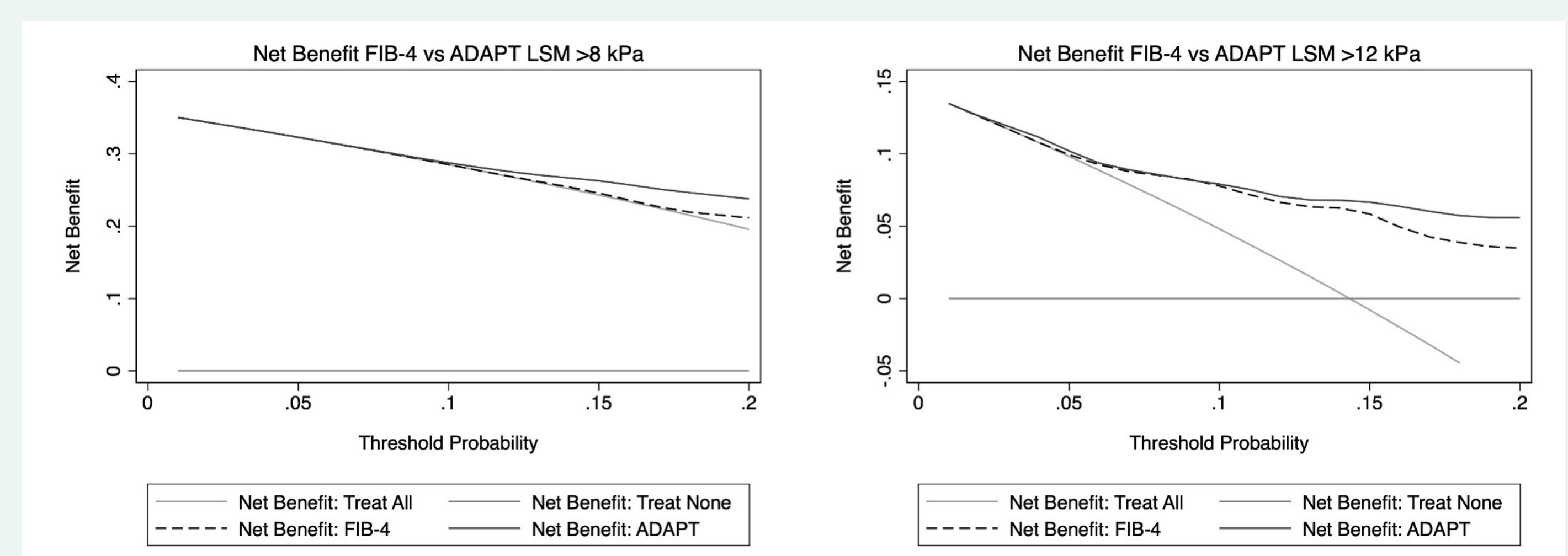


Figure 3. Net benefit analysis comparing ADAPT and FIB-4 in detecting patients with an LSM >8 kPa and patients with an LSM >12 kPa. The net benefit of "Treat all" corresponds to doing an LSM by VCTE on everyone to detect an elevated LSM of 8 or 12 kPa.



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