

SUPPLEMENTARY MATERIAL #3

IMPACT OF STATINS ON FIB-4 PREDICTIONS: LINEAR REGRESION

MODELING

Examining the association between VCTE and FIB-4, adjusted for age, BMI, statin, and presence of prediabetes/diabetes.

To assess the association between FIB-4, BMI, statin, and diabetic status (prediabetes/ diabetes), we conducted multiple linear regression analysis. Since Age in FIB-4 is introduced as a multiplicative term, and its weight has been shown to be overestimated, we allowed interaction between FIB-4 and Age to correct for this fact. We used restricted cubic splines to model non-linear terms.

BMI and diabetes, but not prediabetes, significantly impacted the association between VCTE and FIB. Statin effect was not significant (p-value 0.339).

The figure shows a graphical representation of the equation model.

Significance testing of the terms in the model

	P
FIB-4	<.001
Statin	0.339
Prediabetes	0.416
Diabetes	<0.001
BMI	<0.001
FIB-4 * Age	<0.001

Model Equation

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VCTE = 6.1746267 + 0.10661988 * FIB4 - 0.061988652 * Age + 0.43942359 *  
Statin + 0.27940647 * Prediabetes + 1.7883265 * Diabetes 0.071072554 * BMI +  
0.00043274812 * pmax(BMI - 25.264, 0)^3 - 0.00076237092 * pmax(BMI - 31.19,  
0)^3 + 0.0003296228 * pmax(BMI - 38.97, 0)^3 + 0.084670346 * FIB4 * Age
```

VCTE: vibration controlled transient elastography

BMI: Body mass index

Note: pmax is a function of R base that returns the maximum value of the two terms separated by the comma. For example, pmax(3,0) would return a 3, whereas pmax(-1,0) would return a 0.

Predicted mean values of VCTE based on FIB-4 and BMI and adjusted for age, statin whether patients taking or not taking a statin and diabetes status (Normal, prediabetes and diabetes). The lines within the plots show the mean predicted VCTE and the dashed line represents 1.3 FIB-4 thresholds. The plots are shown for representative ages of 50 and 65, and for whether patients on a statin or not. Note that for a given value of FIB-4 patients with higher BMI have higher predicted mean VCTE. Diabetes but not prediabetes significantly affected this prediction with a higher mean predicted VCTE in diabetic patients than normal or prediabetes.

