

Supplementary file for the manuscript entitled “**Clinical Predictive Score for Identifying Metabolic Dysfunction Associated Steatotic Liver Disease in Individuals with Prediabetes Using Transient Elastography.**”

Supplementary Table S1. Noninvasive scoring systems utilized for detecting MASLD.

Scoring system	Formulas	Cutoff value	Study population and diagnostic method for fatty liver
Fatty liver index (FLI) [1]	$= (e^{0.953 * \text{Log } e(\text{TG}) + 0.139 * \text{BMI} + 0.718 * \text{Log } e(\text{GGT}) + 0.053 * \text{WC} - 15.745}) / (1 + e^{0.953 * \text{Log } e(\text{TG}) + 0.139 * \text{BMI} + 0.718 * \text{Log } e(\text{GGT}) + 0.053 * \text{WC} - 15.745}) * 100$	<30 absence of NAFLD ≥60 presence of NAFLD	General population, Italy, Ultrasonography
Lipid accumulation product (LAP) index [2]	Male: $(\text{WC (cm.)} - 65) * \text{TG (mmol/L)}$ Female: $(\text{WC (cm.)} - 58) * \text{TG (mmol/L)}$	Male >30.5 presence of NAFLD Female >23.0 presence of NAFLD	General population, Italy, Ultrasonography
Hepatic steatosis index (HSI) [3]	$= 8 * \text{ALT/AST ratio} + \text{BMI (kg/m}^2\text{)} + \text{T2DM (yes = 2, no = 0) + female (yes = 2, no = 0)}$	<30 absence of NAFLD >36 presence of NAFLD	General population, Korea, Ultrasonography
NAFLD-MS score [4]	ALT ≥ 40 U/L (yes = 2, no = 0) AST/ALT ratio ≥ 1 (yes = 1, no = 0) BMI ≥ 25(kg/m ²) (yes = 1.5, no = 0) WHR (waist to hip ratio) (≥ 0.9 in male and ≥ 0.8 in Female; yes = 1, no = 0) T2DM (yes = 1, no = 0)	<3 absence of NAFLD ≥5 presence of NAFLD	Patients with metabolic syndrome, Thailand, Ultrasonography
NAFLD ridge score [5]	$= -0.614 + 0.007 * \text{ALT} - 0.214 * \text{HDL-C} + 0.053 * \text{TG} + 0.144 * \text{HbA1C} + 0.032 * \text{WBC} + 0.132 * \text{HT}$	< 0.24 absence of NAFLD > 0.44 presence of NAFLD	General population, Hongkong, proton-magnetic resonance spectroscopy

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Supplementary Table S2. Univariate and multivariable logistic regression analysis of risk factors associated with MASLD in individuals with prediabetes.

Predictors	Cutoff value	Univariable				Multivariable			
		Coefficient	Odds ratio	95% CI	p	Coefficient	Odds ratio	95% CI	p
FPG	≥110 mg/dL	1.15	3.17	1.65, 6.10	0.001	1.13	3.1	1.45, 6.65	0.004
HbA1C	≥6.0%	0.90	2.46	1.60, 3.80	<0.001	0.83	2.3	1.37, 3.66	0.001
HDL-c	<40 mg/dL male <50 mg/dL female	1.00	2.73	1.64, 4.53	<0.001	0.77	2.2	1.22, 3.82	0.008
ALT	≥30 IU/L	1.21	3.35	2.02, 5.57	<0.001	0.92	2.5	1.41, 4.48	0.002
BMI category	<23 kg/m ²	Reference				Reference			
	23-24.99 kg/m ²	0.55	1.73	0.74, 4.04	0.2	0.41	1.5	0.61, 3.71	0.3
	≥25 kg/m ²	1.96	7.11	3.58, 14.13	<0.001	1.76	5.8	2.76, 12.28	<0.001
Hypertension	Yes	0.58	1.78	1.12, 2.83	0.01	0.25	1.3	0.74, 2.22	0.3
Sex	Female	-0.27	0.76	0.49, 1.20	0.2	-0.15	0.9	0.50, 1.48	0.5

BMI, body mass index; FPG, fasting plasma glucose; HbA1c, Hemoglobin A1c; HDL-C, high-density lipoprotein cholesterol; IU/L international unit per liter; kg, kilogram; kg/m², kilogram per square meter; mg/dL, milligram per deciliter.

Supplementary Table S3. Clinical characteristics and evidence of differences by sex (p values).

Characteristic	Male	Female	p
Number (%)	120 (32%)	255 (68%)	-
Age (years)	61.54±12.21	62.4±8.79	0.4
MASLD (%)	48 (40%)	86 (33.7%)	0.2
BMI (kg/m ²)	26.06±3.99	26.43±4.93	0.4
Obesity* (BMI ≥ 25)	67 (55.8%)	146 (57.3%)	0.7
Waist circumference	92.79±11.81	87.39±11.96	0.001
Hip circumference	98.15±8.74	99.04±10.20	0.3
SBP (mmHg)	131.99±14.86	130.16±14.12	0.2
DBP (mmHg)	76.38±9.66	71.62±10.79	<0.001
Hypertension	92 (76.6%)	155 (60.7%)	0.003
Dyslipidemia	95 (79.1%)	206 (80.7%)	0.7
Metabolic syndrome [†]	59 (67%)	154 (72.6%)	0.3
Duration of prediabetes (years)	2 (1.0, 7.0)	4 (1.0, 7.0)	0.4
FPG (mg/dL)	98.01±9.67	95.89±10.56	0.6
HbA1C (%)	5.82±0.37	5.87±0.32	0.1
Triglyceride (mg/dL)	105 (79, 148)	105 (78, 143)	0.6
HDL-c (mg/dL)	50.63±13.30	60.14±14.09	<0.001
Number HDL-c sex-specific cutoff (%) <40 mg/dL male, <50 mg/dL female	23 (19.1%)	56 (22.0%)	0.5
LDL-c (mg/dL)	92.63±24.03	103.89±29.80	<0.001
AST (IU/L)	24 (20, 29)	22 (18, 26)	0.004
ALT (IU/L)	24 (17, 49)	20 (16, 25)	<0.001
Drug – Statin	88 (73.3%)	181 (67.2%)	0.6

Data are presented as mean ± standard deviation, n (%), or median (25th–75th percentile). Categorical variables are shown as percentage (number), continuous normally distributed variables as mean ± standard deviation, and continuous variables with skewed distributions as median and interquartile range. FPG, fasting plasma glucose; HbA1c, Hemoglobin A1c; SBP, systolic blood pressure; DBP, diastolic BP; ALT, alanine aminotransferase; AST, aspartate transaminase; BMI, body mass index; HDL-C, high-density lipoprotein cholesterol; IQR, interquartile range; IU/L, international unit per liter; kg, kilogram; kg/m², kilogram per square meter; kPa, kilopascal; LDL-C, low-density lipoprotein cholesterol; LSM, liver stiffness measurement; mg/dL, milligram per deciliter; NAFLD, nonalcoholic fatty liver disease; SD, standard deviation. *Obesity with Asian-specific cutoff was defined by BMI ≥ 25 kg/m². †Metabolic syndrome was defined as participants having prediabetes and at least 2 of the following: (1) BMI ≥ 23 kg/m², per the Asian-specific BMI cutoff; (2) documented hypertension; (3) a sex-specific low high-density lipoprotein level or documented dyslipidemia or statin use; and (4) hypertriglyceridemia (fasting ≥ 150 mg/dL) or documented dyslipidemia or statin use.