

Nonalcoholic fatty liver disease increased risk of metabolic diseases, but not severe liver disease: an eleven-year follow-up study

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Supplementary Table 1. Parameters measured in the annual health examinations.

Age
Albumin
AKP (alkaline phosphatase)
ALT (alanine transaminase)
ApoA1 (Apolipoprotein A1)
ApoB (Apolipoprotein B2)
AST (aspartate transaminase)
BMI (Body mass index)
BLRV (whole blood low shear reduced viscosity)
BLRI (relative index of whole blood low shear)
BHRV (whole blood high shear reduced viscosity)
BHRI (relative index of whole blood high shear)
BVV200 (Whole blood viscosity value)
BUN (blood urea nitrogen)
BUS (ultrasound prompt)
CRP (high sensitive C-reactive protein)
Cr (creatinine)
CA (carotid atherosclerosis)
DBIL (Direct bilirubin)
DBp (diastolic blood pressure)
DM (type II diabetes)
ESR (Blood sedimentation)
ESRKV (Blood sedimentation equation K value)
Gender
GLT (glutamyl transpeptidase)
Glucose
HBP (Hypertension)
HBX (red blood cell deformation index TK)
HCT (Hematocrit)
HCY (Homocysteine)
HDL (high density lipoprotein C)
Height
HGB (hemoglobin)
LDL (low density lipoprotein C)
LVH (left ventricular hypertrophy)
MPV (mean platelet volume)
NAFLD (non-alcoholic fatty liver disease)
PhyExa (physical examination results)
PV (plasma viscosity)
PDW (Platelet distribution width)
PLT (platelet)
PCT (prothrombin consumption time)
RBC (red blood cell count)
SBp (systolic blood pressure)
TB (Total Bilirubin)
TC (Total cholesterol)
TG (Triglyceride)

TP (total protein)
UA (uric acid)
Waist
Weight
WGR (white globulin ratio)
WBC (white blood cell count)

Supplementary Table 2. Prevalence of NAFLD in an eastern Chinese population (2006-2016)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total (n)	9786	9852	9827	8026	8225	8309	8311	8552	8442	8463	8436
NAFLD (n)	1687	1875	2161	1797	1871	1943	2033	2169	2356	2610	2734
(%)	17.2	19.0	22.0	22.4	22.7	23.4	24.5	25.4	27.9	30.8	32.4
Male (n)	6834	6872	6857	5468	5640	5692	5680	5891	5820	5812	5816
NAFLD (n)	1399	1555	1790	1419	1488	1562	1616	1734	1896	2081	2152
(%)	20.5	22.6	26.1	26.0	26.4	27.4	28.5	29.4	32.6	35.8	37.0
≤ 30ys (n)	1196	938	729	826	980	1092	1068	1163	1013	964	927
NAFLD (n)	155	112	100	78	83	94	108	157	171	208	200
(%)	13.0	11.9	13.7	9.4	8.5	8.6	10.1	13.5	16.9	21.6	21.6
>30, ≤ 40ys (n)	2144	2292	2353	1504	1395	1248	1150	1096	1028	970	953
NAFLD (n)	419	502	590	412	386	375	358	367	372	357	344
(%)	19.5	21.9	25.1	27.4	27.7	30.0	31.1	33.5	36.2	36.8	36.1
>40, ≤ 50ys (n)	1480	1465	1450	1107	1183	1211	1279	1299	1339	1360	1347
NAFLD (n)	358	376	429	334	380	418	456	478	517	595	577
(%)	24.2	25.7	29.6	30.2	32.1	34.5	35.7	36.8	38.6	43.8	42.8
>50, ≤ 60ys (n)	1084	1180	1314	1033	1055	1068	1008	979	978	984	978
NAFLD (n)	267	341	415	352	364	394	361	350	385	416	456
(%)	24.6	28.9	31.6	34.1	34.5	36.9	35.8	35.8	39.4	42.3	46.6
>60, ≤ 70ys (n)	635	655	622	553	547	574	632	774	834	879	937
NAFLD (n)	137	147	165	151	159	172	202	243	292	331	382
(%)	21.6	22.4	26.5	27.3	29.1	30.0	32.0	31.4	35.0	37.7	40.8
>70ys (n)	295	342	389	445	480	499	543	580	628	655	674
NAFLD (n)	63	77	91	92	116	109	131	139	159	174	193
(%)	21.4	22.5	23.4	20.7	24.2	21.8	24.1	24.0	25.3	26.6	28.6
Female (n)	2952	2980	2970	2558	2585	2617	2631	2661	2622	2651	2620
NAFLD (n)	288	320	371	378	383	381	417	435	460	529	582
(%)	9.8	10.7	12.5	14.8	14.8	14.6	15.8	16.3	17.5	20.0	22.2
≤ 30ys (n)	209	167	147	143	213	251	248	270	239	244	214
NAFLD (n)	5	4	4	1	0	1	2	8	9	14	13
(%)	2.4	2.4	2.7	0.7	0.0	0.4	0.8	3.0	3.8	5.7	6.1
>30, ≤ 40ys (n)	934	924	869	596	496	415	348	276	232	198	177
NAFLD (n)	33	29	36	28	28	24	23	17	19	20	20
(%)	3.5	3.1	4.1	4.7	5.6	5.8	6.6	6.2	8.2	10.1	11.3
>40, ≤ 50ys (n)	801	785	776	627	666	701	733	754	707	704	658
NAFLD (n)	54	60	63	62	69	76	85	88	84	98	99
(%)	6.7	7.6	8.1	9.9	10.4	10.8	11.6	11.7	11.9	13.9	15.0
>50, ≤ 60ys (n)	536	604	651	643	647	659	641	638	665	680	689
NAFLD (n)	78	100	133	131	132	128	132	132	131	157	171
(%)	14.6	16.6	20.4	20.4	20.4	19.4	20.6	20.7	19.7	23.1	24.8
>60, ≤ 70ys (n)	367	368	367	358	347	347	380	417	438	461	494
NAFLD (n)	94	96	92	99	95	92	106	117	123	140	159
(%)	25.6	26.1	25.1	27.7	27.4	26.5	27.9	28.1	28.1	30.4	32.2
>70ys (n)	105	132	160	191	216	244	281	306	341	364	388
NAFLD (n)	24	31	43	57	59	60	69	73	94	100	120
(%)	22.9	23.5	26.9	29.8	27.3	24.6	24.6	23.9	27.6	27.5	30.9

Supplementary Table 3. Prevalence of NAFLD in obese persons (BMI > 25) (2006-2016)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total (n)	2445	2674	2749	2119	2314	2271	2218	2593	2159	2121	2106
NAFLD											
(n)	1104	1256	1397	1103	1231	1218	1239	1387	1309	1384	1414
(%)	45.2	47	50.8	52.1	53.2	53.6	55.9	53.5	60.6	65.3	67.1
Male (n)	1927	2163	2232	1663	1822	1813	1744	2086	1728	1716	1699
NAFLD											
(n)	912	1053	1180	885	1002	1001	1010	1153	1086	1147	1173
(%)	47.3	48.7	52.9	53.2	55	55.2	57.9	55.3	62.8	66.8	69
≤ 30ys (n)	213	202	174	156	190	227	220	293	224	212	200
NAFLD											
(n)	112	86	67	53	64	70	79	115	119	132	126
(%)	52.6	42.6	38.5	34	33.7	30.8	35.9	39.2	53.1	62.3	63
>30, ≤ 40ys (n)	549	640	689	427	428	375	346	407	310	302	291
NAFLD											
(n)	269	325	388	259	250	229	226	247	229	211	206
(%)	49	50.8	56.3	60.7	58.4	61.1	65.3	60.7	73.9	69.9	70.8
>40, ≤ 50ys (n)	433	456	468	353	414	423	431	517	443	437	425
NAFLD											
(n)	210	225	263	185	248	264	276	321	293	323	310
(%)	48.5	49.3	56.2	52.4	59.9	62.4	64	62.1	66.1	73.9	72.9
>50, ≤ 60ys (n)	351	447	491	364	390	392	353	381	312	309	303
NAFLD											
(n)	173	240	280	222	236	247	209	226	207	217	232
(%)	49.3	53.7	57	61	60.5	63	59.2	59.3	66.3	70.2	76.6
>60, ≤ 70ys (n)	265	274	249	213	213	209	222	291	263	262	281
NAFLD											
(n)	98	111	113	102	113	113	133	155	150	159	189
(%)	37	40.5	45.4	47.9	53.1	54.1	59.9	53.3	57	60.7	67.3
>70ys (n)	116	144	161	150	187	187	172	197	176	194	199
NAFLD											
(n)	50	66	69	64	91	78	87	89	88	105	110
(%)	43.1	45.8	42.9	42.7	48.7	41.7	50.6	45.2	50	54.1	55.3
Female (n)	518	511	517	456	492	458	474	507	431	405	407
NAFLD											
(n)	192	203	217	218	229	217	229	234	223	237	241
(%)	37.1	39.7	42	47.8	46.5	47.4	48.3	46.2	51.7	58.5	59.2
≤ 30ys (n)	15	5	11	9	6	12	13	15	13	14	16
NAFLD											
(n)	3	1	2	0	0	1	2	5	5	5	7
(%)	20	20	18.2	0	0	8.3	15.4	33.3	38.5	35.7	43.8
>30, ≤ 40ys (n)	69	78	75	46	50	36	36	31	21	20	18
NAFLD											
(n)	20	18	22	18	22	14	17	9	10	11	11
(%)	29	23.1	29.3	39.1	44	38.9	47.2	29	47.6	55	61.1
>40, ≤ 50ys (n)	101	107	109	83	90	88	94	115	89	76	66
NAFLD											
(n)	37	41	41	34	36	39	44	48	45	46	35
(%)	36.6	38.3	37.6	41	40	44.3	46.8	41.7	50.6	60.5	53
>50, ≤ 60ys (n)	141	146	146	151	155	137	121	125	101	92	93
NAFLD											
(n)	49	56	63	72	72	66	56	61	53	62	61
(%)	34.8	38.4	43.2	47.7	46.5	48.2	46.3	48.8	52.5	67.4	65.6
>60, ≤ 70ys (n)	141	127	115	103	115	105	120	127	109	105	105
NAFLD											
(n)	64	66	58	59	65	59	68	67	57	63	66
(%)	45.4	52	50.4	57.3	56.5	56.2	56.7	52.8	52.3	60	62.9
>70ys (n)	51	48	61	64	76	80	90	94	98	98	109
NAFLD											
(n)	19	21	31	35	34	38	42	44	53	50	61
(%)	37.3	43.8	50.8	54.7	44.7	47.5	46.7	46.8	54.1	51	56

Supplementary Table 4. Logistic regression for risk factors of NAFLD

	Estimate	Std. Error	z value	OR	2.5% CI	97.5% CI	Pr(> z)
(Intercept)	-21.63	0.3151	-68.631	4.05E-10	2.18E-10	7.49E-10	< 0.001***
BMI	0.3791	0.005224	72.563	1.460966	1.446132	1.476054	< 0.001***
albumin	0.0994	0.005635	17.64	1.104513	1.092391	1.116791	< 0.001***
WGR	0.2666	0.06118	4.357	1.305464	1.157849	1.471676	< 0.001***
WBC	0.06149	0.008274	7.432	1.063423	1.046307	1.080801	< 0.001***
TG	0.2447	0.01213	20.17	1.277201	1.247335	1.308081	< 0.001***
HDL	-0.7862	0.04247	-18.511	0.45558	0.419127	0.495053	< 0.001***
GLT	0.002947	0.000358	8.242	1.002952	1.002255	1.003661	< 0.001***
ALT	0.02717	0.001056	25.738	1.027538	1.025425	1.029676	< 0.001***
AST	-0.0142	0.001834	-7.745	0.985896	0.982336	0.989418	< 0.001***
Cr	-0.02375	0.001025	-23.177	0.976528	0.974562	0.978485	< 0.001***
ALP	0.000909	0.000547	1.661	1.000909	0.999835	1.001982	0.09664
UA	0.00433	0.000176	24.542	1.004339	1.003992	1.004687	< 0.001***
Glu	0.2159	0.01197	18.044	1.241037	1.212327	1.270567	< 0.001***
SBp	0.006338	0.001014	6.252	1.006358	1.00436	1.008359	< 0.001***
DBp	0.003561	0.001546	2.303	1.003567	1.000532	1.006614	0.021265*
ESR	0.03401	0.001808	18.808	1.034593	1.030931	1.038265	< 0.001***
HGB	0.01966	0.00121	16.252	1.019853	1.017441	1.022277	< 0.001***
PLT	0.002588	0.000249	10.401	1.002592	1.002102	1.003081	< 0.001***
ApoB	0.4143	0.05413	7.654	1.513337	1.361002	1.6827	< 0.001***
TB	0.00778	0.002057	3.782	1.00781	1.003739	1.011865	< 0.001***

Supplementary Table 5. Cox regression for risk factors of NAFLD

	se(coef)	z value	coef	HR	lower .95	upper .95	Pr(> z)
BMI	0.005327	35.102	0.186996	1.205622	1.1930993	1.2182761	< 0.001***
Albumin	0.009655	4.656	0.04495	1.045976	1.0263691	1.0659575	< 0.001***
WGR	0.096408	1.326	0.12788	1.136417	0.9407519	1.3727778	0.184691
WBC	0.010893	4.087	0.044521	1.045527	1.0234412	1.0680884	< 0.001***
TG	0.011283	11.755	0.132633	1.141831	1.1168563	1.1673638	< 0.001***
HDL	0.071682	-13.214	-0.94719	0.387829	0.3369955	0.4463302	< 0.001***
GLT	0.000494	2.601	0.001285	1.001285	1.0003166	1.0022553	0.009302**
ALT	0.001478	9.309	0.013757	1.013853	1.0109201	1.0167934	< 0.001***
AST	0.003074	-4.965	-0.01526	0.984853	0.978937	0.990805	< 0.001***
Cr	0.001677	-5.609	-0.00941	0.990637	0.9873861	0.9938985	< 0.001***
ALP	0.000871	1.451	0.001263	1.001264	0.9995565	1.0029745	0.146888
UA	0.000277	11.14	0.003085	1.003089	1.0025451	1.0036338	< 0.001***
Glu	0.016397	3.771	0.061837	1.063788	1.0301446	1.0985309	0.000162***
SBp	0.001643	1.485	0.00244	1.002443	0.9992205	1.0056749	0.137485
DBp	0.002517	2.383	0.005996	1.006014	1.0010643	1.0109889	0.01719*
ESR	0.003054	3.429	0.010473	1.010528	1.0044965	1.0165956	0.000606***
HGB	0.002056	4.507	0.009269	1.009312	1.0052523	1.0133885	< 0.001***
PLT	0.000389	3.318	0.001291	1.001292	1.0005286	1.0020554	0.000905***
ApoB	0.092419	11.569	1.069192	2.913026	2.4303962	3.4914963	< 0.001***
TB	0.003316	-0.216	-0.00072	0.999283	0.9928097	1.0057994	0.828863