

Liver enzymes are not directly involved in atrial fibrillation: a prospective cohort study

Running head: Liver enzymes and atrial fibrillation

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Supplementary tables 2

Supplementary figures 2

Supplementary File

Supplementary Table 1 Characteristics of men at follow-up with and without atrial fibrillation (AF)

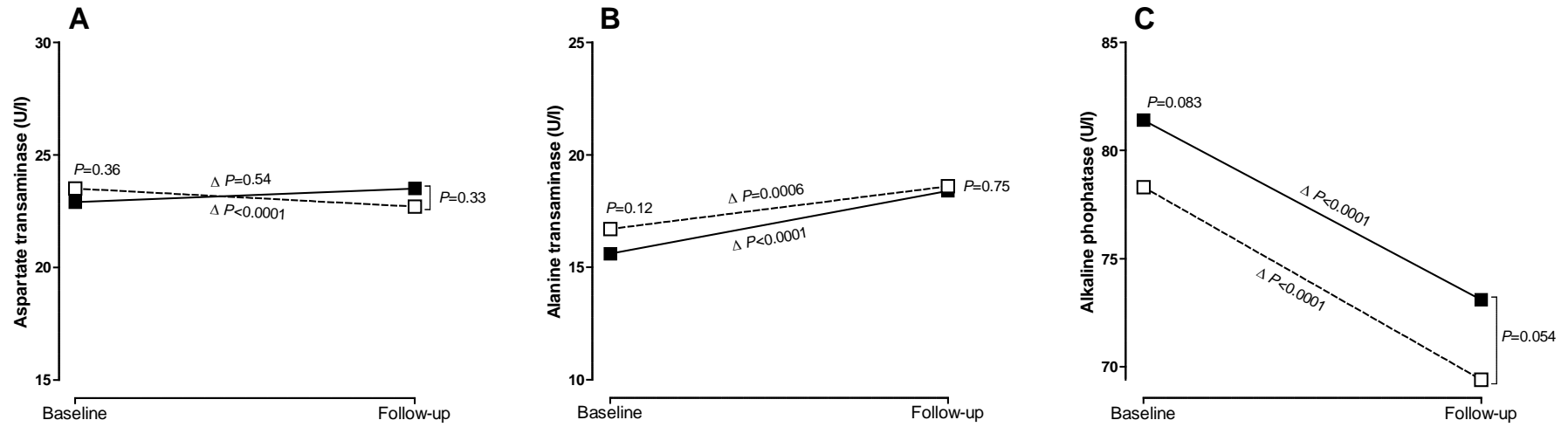
	Without AF (n=1320)	With AF (n=108)	P
Age (years)	78.4 ± 4.6	80.1 ± 5.2	0.001
Body mass index (kg/m ²)	26.9 ± 3.8	27.4 ± 3.9	0.19
Systolic blood pressure (mmHg)	146.0 ± 19.2	137.4 ± 20.4	<0.0001
Diastolic blood pressure (mmHg)	76.2 ± 11.3	79.2 ± 13.6	0.028
Gamma-glutamyl transferase (U/l)	24.4 (11.0-69.0)	33.2 (14.0-115.0)	<0.0001
Aspartate transaminase (U/l)	22.7 (15.0-35.0)	22.3 (17.0-33.0)	0.33
Alanine transaminase (U/l)	18.6 (10.0-35.0)	18.4 (11.0-34.0)	0.75
Alkaline phosphatase (U/l)	69.4 (44.0-109.0)	73.1 (49.0-118.0)	0.054
ALT:AST	1.27 ± 0.42	1.34 ± 0.45	0.21
Total bilirubin (µmol/l)	11.05 (6.00-23.00)	13.80 (7.00-28.00)	<0.0001
Total protein (g/l)	70.0 ± 4.1	69.9 ± 4.1	0.80
Serum albumin (g/l)	44.8 ± 2.4	44.5 ± 2.5	0.15
Blood glucose (mmol/l)	5.58 (4.60-7.90)	5.83 (4.70-9.00)	0.085
Total cholesterol (mmol/l)	4.66 ± 1.04	4.39 ± 0.98	0.006
C-reactive protein (mg/l)	1.30 (0.18-9.82)	1.96 (0.42-14.76)	0.0007
NT-proBNP (pg/ml)	120 (12-1057)	993 (264-3554)	<0.0001
Current smoking n, (%)	46 (3.5)	1 (0.9)	0.15
Drinking n, (%)			0.62
None	141 (10.7)	14 (13.0)	
Occasional	401 (30.4)	34 (31.5)	
Light	542 (41.1)	40 (37.0)	
Moderate	152 (11.5)	17 (15.7)	
Heavy	20 (1.5)	1 (0.01)	
Physically inactive n, (%)	212 (16.1)	21 (19.4)	0.36
Previous myocardial infarction n, (%)	135 (10.2)	11 (10.2)	0.70
Heart failure n, (%)	61 (4.6)	13 (12.0)	0.0008
Anti-hypertensive meds n, (%)	759 (57.5)	83 (76.9)	<0.0001

Values are number of subjects (%), arithmetic mean ± SD, or geometric mean (5th to 95th percentile interval). AF, atrial fibrillation; AST, aspartate transaminase; ALT, alanine transaminase; NT-proBNP, N-terminal prohormone of brain natriuretic peptide.

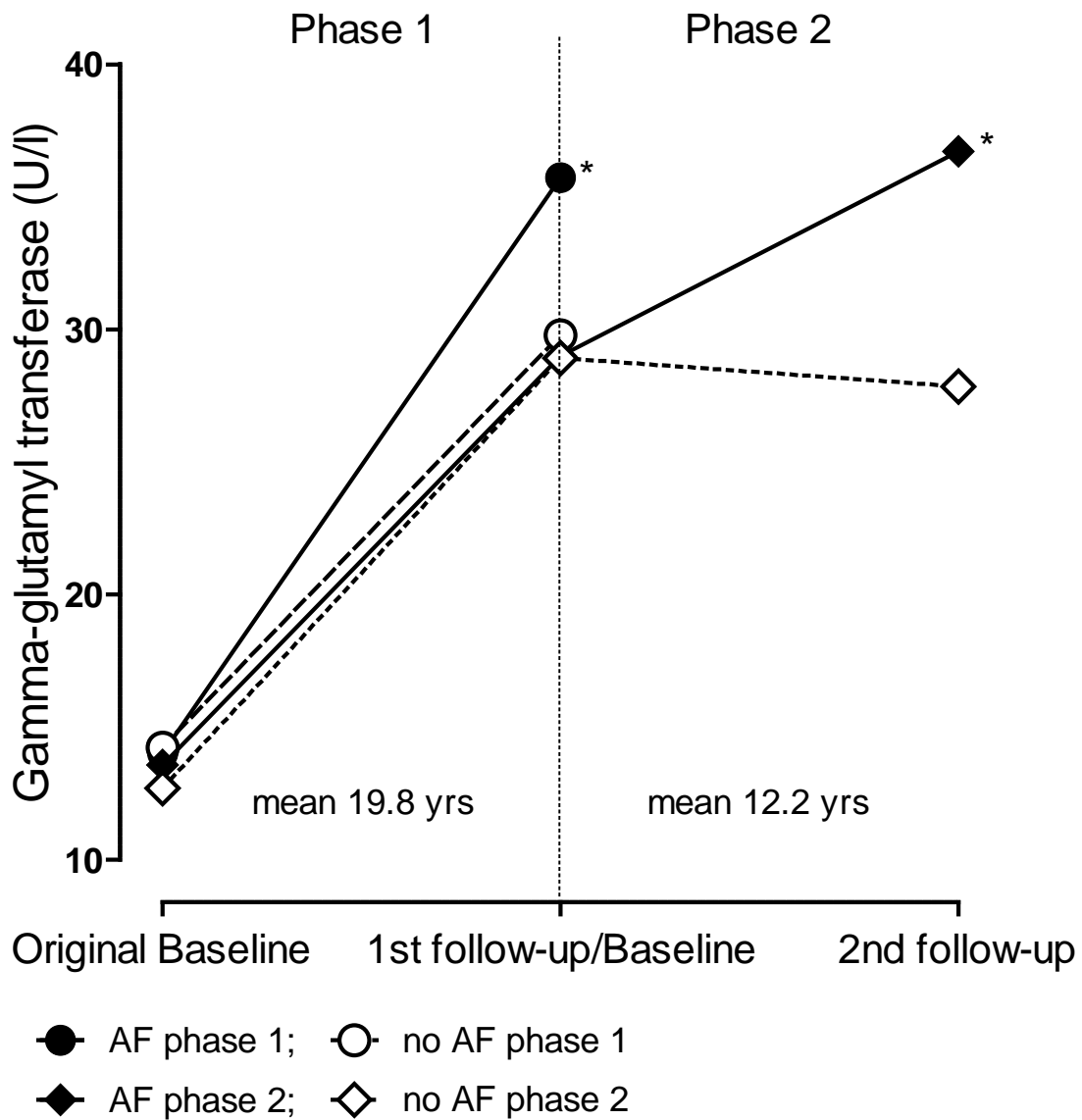
Supplementary Table 2 Univariate associations between change in NT-proBNP and liver enzymes concentrations from baseline to follow-up

	Total group		With AF		Without AF	
	Δ NT-proBNP					
	r	<i>P</i>	r	<i>P</i>	r	<i>P</i>
Δ GGT	0.14	<0.0001	0.15	0.14	0.11	<0.0001
Δ ALT	0.01	0.61	0.02	0.87	0.01	0.72
Δ AST	0.04	0.17	0.02	0.86	0.04	0.20
Δ AST/ALP	-0.04	0.19	-0.12	0.24	-0.02	0.43
Δ ALP	0.10	0.0001	0.16	0.10	0.10	0.0005
Δ Bilirubin	0.13	<0.0001	0.15	0.13	0.08	0.004

NT-proBNP, N-terminal prohormone of brain natriuretic peptide, GGT, gamma-glutamyl transferase; ALT, alanine transaminase; AST, aspartate transaminase; Δ denotes change from baseline to follow-up.



Supplementary Figure 1 Comparison of aspartate transaminase, alanine transaminase and alanine phosphatase at baseline and follow-up between those with and without atrial fibrillation at follow-up. AF.



Supplementary Figure 2 Comparison of gamma-glutamyl transferase between those with and without atrial fibrillation at the original baseline (1978-1980), first follow-up/current baseline (1998-2000) and second follow-up (2010-2012). The circles represent participants with (●) and without (○) atrial fibrillation that passed away after the first follow-up/current baseline (1998-2000) and not included in the present study. The diamonds represent the participants with (◆) and without (◇) atrial fibrillation included in the current study and alive at the second follow-up (2010-2012).