

Title: Decreased high density lipoprotein cholesterol is an independent predictor for persistent organ failure, pancreatic necrosis and mortality in acute pancreatitis

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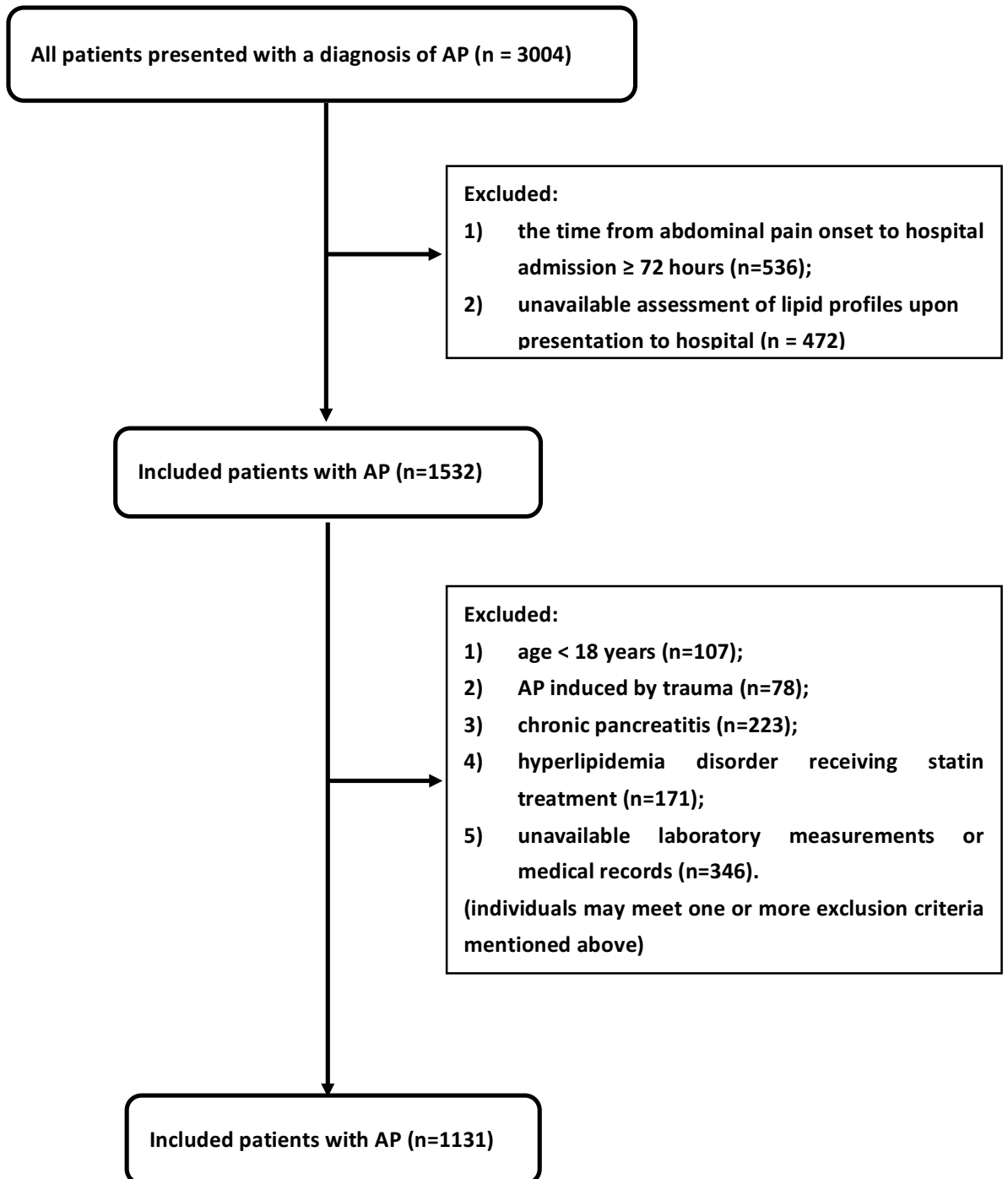
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Supplementary figure

Supplementary figure 1. Flow chart illustrating patient selection

Abbreviations: AP = acute pancreatitis



Supplementary tables

Supplementary table 1. Subgroup analysis: incidence of POF according to HDL-C level quartiles

Variables	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	P for trend	P for interaction
Subgroup (n) HRa (95% CI) n (number of POF)						
Women (n=537) HRa (95% CI) n	1.00 (reference) 32	1.32 (0.72, 2.42) 30	0.17 (0.07, 0.41) 7	0.24 (0.12, 0.48) 14	< 0.001	0.762
Men (n=804) HRa (95% CI) n	1.00 (reference) 76	0.17 (0.10, 0.29) 22	0.11 (0.06, 0.20) 14	0.08 (0.04, 0.18) 8	< 0.001	
Age ≥50 (n=542) HRa (95% CI) n	1.00 (reference) 43	0.44 (0.24, 0.82) 32	0.08 (0.04, 0.18) 12	0.11 (0.06, 0.23) 15	< 0.001	0.001
Age <50 (n=799) HRa (95% CI) n	1.00 (reference) 65	0.26 (0.15, 0.45) 20	0.13 (0.06, 0.27) 9	0.10 (0.04, 0.22) 7	< 0.001	
Daily drinker (n=569) HRa (95% CI) n	1.00 (reference) 68	0.14 (0.08, 0.26) 15	0.16 (0.08, 0.31) 11	0.04 (0.01, 0.16) 2	< 0.001	0.181
No daily drinker (n=772) HRa (95% CI) n	1.00 (reference) 40	0.95 (0.55, 1.64) 37	0.12 (0.06, 0.25) 10	0.21 (0.12, 0.39) 20	< 0.001	
Current smoker (n=664) HRa (95% CI) n	1.00 (reference) 70	0.18 (0.10, 0.32) 19	0.08 (0.04, 0.18) 8	0.04 (0.01, 0.12) 3	< 0.001	0.688
No current smoker (n=677) HRa (95% CI) n	1.00 (reference) 38	0.83 (0.48, 1.44) 33	0.21 (0.11, 0.42) 13	0.28 (0.15, 0.51) 19	< 0.001	
Pre-existing co-morbidities (n=410) HRa (95% CI) n	1.00 (reference) 40	0.28 (0.14, 0.57) 25	0.08 (0.04, 0.18) 11	0.17 (0.08, 0.36) 15	< 0.001	< 0.001
No pre-existing co-morbidities (n=410) HRa (95% CI)	1.00	0.35 (0.21, 0.57)	0.12 (0.06, 0.23)	0.07 (0.03, 0.13)	< 0.001	

n	(reference) 68	0.58) 27	0.24) 10	0.17) 7		
Total leukocyte count $\geq 12 \times 10^9/L$ (n=616) HRa (95% CI)	1.00	0.32 (0.17,	0.38 (0.18,	0.17 (0.07,	< 0.001	< 0.001
n	(reference) 61	0.60) 35	0.82) 17	0.40) 12		
Total leukocyte count $< 12 \times 10^9/L$ (n=725) HRa (95% CI)	1.00	0.31 (0.14,	0.08 (0.02,	0.33 (0.13,	< 0.001	
n	(reference) 47	0.68) 17	0.24) 2	0.85) 10		
Serum glucose $\geq 7.1 \text{mmol/L}$, (n=751) HRa (95% CI)	1.00	0.32 (0.19,	0.13 (0.07,	0.20 (0.10,	< 0.001	< 0.001
n	(reference) 90	0.57) 40	0.27) 16	0.42) 18		
Serum glucose $< 7.1 \text{mmol/L}$, (n=590) HRa (95% CI)	1.00	0.41 (0.15,	0.25 (0.08,	0.26 (0.07,	< 0.001	
n	(reference) 18	1.11) 12	0.86) 5	0.95) 4		
Serum calcium $< 2 \text{mmol/L}$, (n=406) HRa (95% CI)	1.00	0.40 (0.23,	0.19 (0.09,	0.25 (0.10,	< 0.001	< 0.001
n	(reference) 90	0.71) 41	0.43) 13	0.64) 11		
Serum calcium $\geq 2 \text{mmol/L}$, (n=935) HRa (95% CI)	1.00	0.25 (0.11,	0.15 (0.06,	0.21 (0.09,	< 0.001	
n	(reference) 18	0.60) 11	0.40) 8	0.53) 11		

Abbreviations: CI, confident interval; HDL-C, high-density lipoprotein cholesterol; HR, hazard ratio; POF, persistent organ failure. HRa adjustments include sex, age, smoking status, current drinker, pre-existing co-morbidities including history of chronic pulmonary disease, chronic renal disease and cardiovascular disease, total leukocyte count, serum glucose, calcium; but exclude the exposure variable for the individual sub-groups.

Supplementary table 2. Subgroup analysis: incidence of PNec according to HDL-C level quartiles

Variables	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	P for trend	P for interaction
Subgroup (n) HRa (95% CI) n (number of PNec)						
Women (n=537) HRa (95% CI) n	1.00 (reference) 31	1.77 (0.97, 3.24) 35	0.20 (0.09, 0.47) 8	0.42 (0.23, 0.78) 22	< 0.001	< 0.001
Men (n=804) HRa (95% CI) n	1.00 (reference) 101	0.27 (0.17, 0.42) 52	0.18 (0.11, 0.28) 35	0.14 (0.08, 0.25) 22	< 0.001	
Age ≥50 (n=542) HRa (95% CI) n	1.00 (reference) 37	0.69 (0.38, 1.28) 35	0.16 (0.08, 0.32) 16	0.29 (0.15, 0.53) 25	< 0.001	0.982
Age <50 (n=799) HRa (95% CI) n	1.00 (reference) 95	0.45 (0.29, 0.69) 52	0.24 (0.14, 0.39) 27	0.15 (0.09, 0.27) 19	< 0.001	
Daily drinker (n=569) HRa (95% CI) n	1.00 (reference) 95	0.24 (0.15, 0.39) 41	0.26 (0.15, 0.43) 29	0.16 (0.08, 0.31) 14	< 0.001	< 0.001
No daily drinker (n=772) HRa (95% CI) n	1.00 (reference) 37	1.50 (0.87, 2.56) 46	0.19 (0.10, 0.38) 14	0.38 (0.22, 0.65) 30	< 0.001	
Current smoker (n=664) HRa (95% CI) n	1.00 (reference) 94	0.33 (0.21, 0.52) 49	0.20 (0.12, 0.33) 30	0.14 (0.08, 0.26) 19	< 0.001	< 0.001
No current smoker (n=677) HRa (95% CI) n	1.00 (reference) 38	1.01 (0.59, 1.74) 38	0.21 (0.11, 0.42) 13	0.38 (0.21, 0.67) 25	< 0.001	
Pre-existing co-morbidities (n=410) HRa (95% CI) n	1.00 (reference) 32	0.56 (0.28, 1.08) 28	0.20 (0.09, 0.41) 15	0.38 (0.19, 0.79) 19	< 0.001	0.008
No pre-existing co-morbidities (n=410) HRa (95% CI) n	1.00 (reference)	0.50 (0.34, 0.76)	0.20 (0.12, 0.33)	0.16 (0.09, 0.25)	< 0.001	

	100	59	28	25		
Total leukocyte count $\geq 12 \times 10^9/L$ (n=616) HRa (95% CI)	1.00 (reference)	0.73 (0.43, 1.22)	0.61 (0.33, 1.14)	0.55 (0.29, 1.05)	0.003	< 0.001
n	73	58	29	26		
Total leukocyte count $< 12 \times 10^9/L$ (n=725) HRa (95% CI)	1.00 (reference)	0.37 (0.19, 0.71)	0.16 (0.07, 0.34)	0.32 (0.15, 0.68)	< 0.001	
n	59	29	14	18		
Serum glucose $\geq 7.1 \text{mmol/L}$, (n=751) HRa (95% CI)	1.00 (reference)	0.34 (0.22, 0.54)	0.14 (0.08, 0.23)	0.20 (0.12, 0.34)	0.003	<0.001
n	108	63	29	33		
Serum glucose $< 7.1 \text{mmol/L}$, (n=590) HRa (95% CI)	1.00 (reference)	1.02 (0.54, 1.93)	0.42 (0.21, 0.85)	0.28 (0.13, 0.59)	< 0.001	
n	24	24	14	11		
Serum calcium $< 2 \text{mmol/L}$, (n=406) HRa (95% CI)	1.00 (reference)	0.50 (0.29, 0.87)	0.44 (0.22, 0.87)	0.64 (0.28, 1.46)	0.174	< 0.001
n	101	51	24	18		
Serum calcium $\geq 2 \text{mmol/L}$, (n=935) HRa (95% CI)	1.00 (reference)	0.67 (0.37, 1.21)	0.24 (0.12, 0.47)	0.34 (0.18, 0.64)	< 0.001	
n	31	36	19	26		

Abbreviations: CI, confident interval; HDL-C, high-density lipoprotein cholesterol; HR, hazard ratio; PNec, pancreatic necrosis. HRa adjustments include sex, age, smoking status, current drinker, pre-existing co-morbidities including history of chronic pulmonary disease, chronic renal disease and cardiovascular disease, total leukocyte count, serum glucose, calcium; but exclude the exposure variable for the individual sub-groups.

Supplementary table 3. Subgroup analysis: in-hospital mortality according to HDL-C level quartiles

Variables	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	P for trend	P for interaction
Subgroup (n) HRa (95% CI) n (number of in-hospital death)						
Women (n=537) HRa (95% CI) n	1.00 (reference) 16	1.35 (0.63, 2.89) 16	- 0	0.16 (0.05, 0.48) 4	< 0.001	0.207
Men (n=804) HRa (95% CI) n	1.00 (reference) 26	0.12 (0.04, 0.36) 4	0.27 (0.12, 0.60) 8	0.09 (0.02, 0.37) 2	< 0.001	
Age ≥50 (n=542) HRa (95% CI) n	1.00 (reference) 22	0.63 (0.31, 1.28) 18	0.08 (0.03, 0.25) 4	0.13 (0.05, 0.34) 6	< 0.001	< 0.001
Age <50 (n=799) HRa (95% CI) n	1.00 (reference) 20	0.10 (0.02, 0.44) 2	0.24 (0.08, 0.71) 4	- 0	< 0.001	
Daily drinker (n=569) HRa (95% CI) n	1.00 (reference) 22	0.08 (0.02, 0.35) 2	0.37 (0.14, 0.94) 6	- 0	< 0.001	0.574
No daily drinker (n=772) HRa (95% CI) n	1.00 (reference) 20	0.93 (0.46, 1.86) 18	0.06 (0.01, 0.25) 2	0.15 (0.06, 0.38) 6	< 0.001	
Current smoker (n=664) HRa (95% CI) n	1.00 (reference) 20	0.19 (0.06, 0.56) 4	0.21 (0.07, 0.64) 4	- 0	< 0.001	0.019
No current smoker (n=677) HRa (95% CI) n	1.00 (reference) 22	0.69 (0.34, 1.39) 16	0.13 (0.04, 0.37) 4	0.17 (0.06, 0.42) 6	< 0.001	
Pre-existing co-morbidities (n=410) HRa (95% CI) n	1.00 (reference) 20	0.48 (0.22, 1.04) 14	0.10 (0.03, 0.31) 4	0.21 (0.08, 0.57) 6	< 0.001	< 0.001
No pre-existing co-morbidities (n=410) HRa (95% CI) n	1.00 (reference)	0.28 (0.11, 0.71)	0.19 (0.06, 0.56)	- 0	< 0.001	

	22	6	4				
Total leukocyte count $\geq 12 \times 10^9/L$ (n=616) HRa (95% CI)	1.00 (reference)	0.64 (0.26, 1.56)	0.47 (0.14, 1.52)	0.32 (0.09, 1.15)	0.035	0.002	
n	22	16	6	4			
Total leukocyte count $< 12 \times 10^9/L$ (n=725) HRa (95% CI)	1.00 (reference)	0.23 (0.07, 0.80)	0.15 (0.03, 0.80)	0.18 (0.03, 0.96)	< 0.001		
n	20	4	2	2			
Serum glucose $\geq 7.1 \text{mmol/L}$, (n=751) HRa (95% CI)	1.00 (reference)	0.39 (0.17, 0.87)	0.25 (0.09, 0.72)	0.19 (0.06, 0.64)	0.035	< 0.001	
n	36	14	6	4			
Serum glucose $< 7.1 \text{mmol/L}$, (n=590) HRa (95% CI)	1.00 (reference)	1.09 (0.26, 4.65)	0.46 (0.07, 3.16)	0.46 (0.07, 3.09)	0.075		
n	6	6	2	2			
Serum calcium $< 2 \text{mmol/L}$, (n=406) HRa (95% CI)	1.00 (reference)	0.39 (0.19, 0.83)	0.25 (0.08, 0.76)	0.10 (0.02, 0.48)	0.025	< 0.001	
n	40	16	6	2			
Serum calcium $\geq 2 \text{mmol/L}$, (n=935) HRa (95% CI)	1.00 (reference)	2.24 (0.26, 19.19)	0.87 (0.07, 10.62)	1.50 (0.14, 15.71)	0.699		
n	2	4	2	4			

Abbreviations: CI, confident interval; HDL-C, high-density lipoprotein cholesterol; HR, hazard ratio.

HRa adjustments include sex, age, smoking status, current drinker, pre-existing co-morbidities including history of chronic pulmonary disease, chronic renal disease and cardiovascular disease, total leukocyte count, serum glucose, calcium; but exclude the exposure variable for the individual sub-groups.

Supplementary table S4. Receiving operator curve analyses of lipid files and Ranson score in predicting outcomes

	AUC (95%CI)	Sensitivity	Specificity	PPV	NPV
POF					
TG	0.606 (0.562-0.650)	0.394	0.801	0.302	0.852
T-CHO	0.526 (0.472-0.579)	0.261	0.919	0.414	0.850
HDL-C	0.778 (0.740-0.815)	0.729	0.704	0.350	0.922
LDL-C	0.658 (0.615-0.700)	0.557	0.700	0.289	0.878
TG/HDL-C	0.681 (0.639-0.723)	0.581	0.706	0.302	0.885
Non-HDL-C	0.533 (0.472-0.579)	0.305	0.875	0.348	0.852
Ranson score	0.678 (0.638-0.719)	0.562	0.749	0.329	0.887
PNec					
TG	0.669 (0.632-0.706)	0.451	0.841	0.513	0.805
T-CHO	0.565 (0.523-0.607)	0.297	0.918	0.572	0.779
HDL-C	0.734 (0.700-0.769)	0.723	0.661	0.442	0.867
LDL-C	0.656 (0.619-0.693)	0.575	0.690	0.408	0.814
TG/HDL-C	0.717 (0.683-0.752)	0.598	0.749	0.469	0.834
Non-HDL-C	0.610 (0.570-0.655)	0.349	0.910	0.584	0.788
Ranson score	0.701 (0.668-0.734)	0.529	0.776	0.467	0.816
In-hospital mortality					
TG	0.550 (0.485-0.615)	0.947	0.216	0.080	0.983
T-CHO	0.602 (0.515-0.689)	0.395	0.911	0.242	0.954
HDL-C	0.768 (0.710-0.827)	0.632	0.777	0.170	0.967
LDL-C	0.678 (0.609-0.747)	0.658	0.652	0.120	0.964
TG/HDL-C	0.630 (0.567-0.694)	0.290	0.907	0.183	0.947
Non-HDL-C	0.562 (0.477-0.647)	0.263	0.963	0.339	0.948
Ranson score	0.745 (0.694-0.795)	0.724	0.723	0.158	0.973

Abbreviations: AUC: area under the curve; CI: confidence intervals; HDL-C, high-density lipoprotein cholesterol; HR, hazard ratio; LDL-C, low-density lipoprotein cholesterol; NPV: negative predictive value; PNec, pancreatic necrosis; POF, persistent organ failure; PPV: positive predictive value; ROC, receiver operating curve; T-CHO, total cholesterol; TG, triglycerides.