Serum paraoxonase and malondialdehyde levels in asymptomatic cholelithiasis

Sir,

We have read with great interest the published article by Atamer *et al*., entitled "Evaluation of Paraoxonase, Malondialdehyde, and Lipoprotein Levels in Patients with Asymptomatic Cholelithiasis".[1] Authors have found lower serum paraoxonase and higher serum malondialdehyde (MDA) levels in patients with asymptomatic cholelithiasis. However, we think that some more points should be discussed.

The authors measured C-reactive protein (CRP) to demonstrate inflammatory status in the body. If other tests showing inflammatory status as erythrocyte sedimentation rate and complete blood count were assigned in addition to CRP, determining the study groups could be more reliable.[2]

Moselhy *et al*., reported the inaccuracy for thiobarbituric acid reactive substances (TBARS) assays on quantifying MDA, and they stated that TBARS approach may limit the likelihood of detecting true differences in the level of lipid peroxidation in clinical studies.[3] The poor specificity of TBARS assays could lead to an overestimation of MDA levels in human plasma.[3] If a chromatographic assay that is accepted to have satisfactory analytic performance to determine MDA levels as a true indicator of lipid peroxidation in biological matrices was employed in this study, interpretation of the results would have been more reliable.

There is an inconsistency between Table 1 and Table 2 on aspartate aminotransaminase (AST) and gamma-glutamyl transferase (GGT) levels of cholelithiasis group. Both parameters are lower in glucose >100 mg/dL and glucose <100 mg/dL groups of cholelithiasis in Table 2 than whole cholelithiasis group in Table 1, which could not be possible. Although there were no significant differences on these parameters between the control and the cholelithiasis groups according to Table 1, these data cause confusion and loss of reliability of the study. Also other tables should be revised because of similar errors.

The 2001 National Cholesterol Education Program Adult Treatment Panel III report about metabolic syndrome diagnostic criteria include abdominal obesity, hypertriglyceridemia, decreased high-density lipoprotein cholesterol, high blood pressure, and hyperglycemia.[4] As it is known, metabolic syndrome is a risk factor for cholelithiasis.[5]

Table 1: Comparison of clinical and biochemical parameters between healthy control and cholelithiasis group

Variables	Healthy control (*n*=40)		Cholelithiasis (*n*=80)		*P*
	Mean	SD	Mean	SD	
Age (years)[a]	50.93	11.73	50.56	14.28	0.350
Glucose (mg/dL)[b]	95.70	10.00	101.70	21.37	0.218
T.Chol (mg/dL)[b]	179.45	20.05	200.15	39.91	0.001
HDL-C (mg/dL)[a]	49.35	6.74	41.18	14.18	0.001
LDL-C (mg/dL)[a]	102.84	23.96	124.26	31.62	0.049
Triglyceride (mg/dL)[b]	146.20	14.71	159.34	54.15	0.452
hsCRP (mg/dL)[b]	0.31	0.11	0.35	0.21	0.764
ALT (IU/L)[b]	33.60	6.61	34.15	19.05	0.335
AST (IU/L)[b]	26.00	6.75	27.48	12.50	0.350
GGT (IU/L)[b]	41.70	4.05	40.81	17.00	0.550
MDA[b] (nmol/mL)	3.62	1.44	5.64	1.89	0.000
PON-1b (IU/L)	441.20	47.02	346.07	109.83	0.001
Male/Female[c]	*n*	%	*n*	%	
Female	25	62.5	55	68.8	0.494
Male	15	37.5	25	31.3	

SD: Standard deviation, T.Chol: Total cholesterol, HDL-C: High-density lipoprotein cholesterol, LDL-C: Low-density lipoprotein cholesterol, hsCRP: Highly sensitive C-reactive protein, ALT: Alanine transaminase, AST: Aspartate transaminase, GGT: Gamma-glutamyltransferase, MDA: Malondialdehyde, PON-1: Paraoxonase. [a]Student's *t* test, [b]Mann-Whitney Utest, [c]Chi-square test

Table 2: Comparison of age, body mass index and laboratory parameters between subjects with cholelithiasis who have fasting blood glucose >100 mg/dL and <100 mg/dL

Variables	Glucose >100 (*n*=39)		Glucose <100 (*n*=41)		*P*
	Mean	SD	Mean	SD	
Age (years)[a]	52.08	11.47	49.12	16.53	0.421
BMI (kg/m^2)[b]	28.36	1.46	25.48	1.28	0.000
T.Chol (mg/dL)[b]	209.21	47.30	191.54	29.42	0.048
HDL-C (mg/dL)[a]	40.21	14.16	42.11	14.31	0.461
LDL-C (mg/dL)[a]	126.36	29.75	122.27	33.54	0.328
Triglyceride (mg/dL)[b]	167.49	59.43	151.59	48.06	0.024
hsCRP (mg/dL)[b]	0.33	0.21	0.38	0.22	0.279
ALT (IU/L)[b]	32.80	15.15	35.44	22.25	0.893
AST (IU/L)[b]	26.62	13.24	24.39	11.81	0.485
GGT (IU/L)[a]	36.00	17.02	35.63	17.18	0.935
MDA[b] (nmol/mL)	8.32	9.27	4.50	1.51	0.000
PON-1b (IU/L)	281.32	96.44	407.67	83.74	0.000

SD: Standard deviation, BMI: Body mass index, T.Chol: Total cholesterol, HDL-C: High-density lipoprotein cholesterol, LDL-C: Low-density lipoprotein cholesterol, hsCRP: Highly sensitive C-reactive protein, ALT: Alanine transaminase, AST: Aspartate transaminase, GGT: Gamma-glutamyltransferase, MDA: Malondialdehyde, PON-1: Paraoxonase activity. [a]Student's *t* test, [b]Mann-Whitney U test

In this study, cholelithiasis group consists of individuals, majority of whom have one or more metabolic syndrome

criteria. In this regard, it is questionable if the findings of this study rely on cholelithiasis or metabolic syndrome itself. Namely, it is the main point whether cholelithiasis is a cause for these results or a result of metabolic syndrome beside other findings. In this view, explanation of these concerns would certainly provide the readers clearer information.

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REFERENCES

1. Atamer A, Kurdas-Ovunc AO, Yesil A, Atamer Y. Evaluation of paraoxonase, malondialdehyde, and lipoprotein levels in patients with asymptomatic cholelithiasis. Saudi J Gastroenterol 2014;20:66-73.
2. Kono T, Otsuka M, Ito M, Misawa M, Hoshioka A, Suzuki M, *et al*. Negative C-reactive protein in children with bacterial infection. Pediatr Int 1999;41:496-9.
3. Moselhy HF, Reid RG, Yousef S, Boyle SP. A specific, accurate, and sensitive measure of total plasma malondialdehyde by HPLC. J Lipid Res 2013;54:852-8.
4. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. Executive Summary of The Third Report of The National Cholesterol Education Program (NCEP). Expert Panel on Detection, Evaluation, And Treatment of High Blood Cholesterol In Adults (Adult Treatment Panel III). JAMA 2001;285:2486-97.
5. Ata N, Kucukazman M, Yavuz B, Bulus H, Dal K, Ertugrul DT, *et al*. The metabolic syndrome is associated with complicated gallstone disease. Can J Gastroenterol 2011;25:274-6.

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