LIPIDS IN HEALTH AND DISEASE

CORRECTION   **Open Access**

Correction: fasting remnant lipoproteins can predict postprandial hyperlipidemia

Tomoki Nagata[1,6], Daisuke Sugiyama[2,7], Takako Kise[1], Satomi Tsuji[1,8], Hideo Ohira[1], Itsuko Sato[3], Mari Yamamoto[3], Hitomi Kohsaka[3], Seiji Kawano[3], Shizuya Yamashita[4], Yuichi Ishikawa[5] and Yoshio Fujioka[1*]

Correction

After publication of this article [1], we noted formatting errors in Table 2. Elapsed time (h) columns at lines 25 to 43 were out of alignment and the true 8 h data were missing. The corrected version of Table 2 is below (Table 1).

Table 1 Lipid and glucose parameters for before and 1 – 8 h after loading with test meal

A. All participants

		Elapsed time (h)					
		0	1	2	4	6	8
TC	(mg/dL)	182.4 ± 32.8	180.2 ± 32.8	178.2 ± 31.3	180.4 ± 30.1	184.0 ± 31.6	188.2 ± 32.5
LDL-C	(mg/dL)	98.5 ± 26.1	96.3 ± 25.5	95.6 ± 25.5	96.7 ± 24.7	99.8 ± 25.6	102.1 ± 26.2
HDL-C	(mg/dL)	70.1 ± 15.4	68.3 ± 15.4	66.2 ± 14.1	68.3 ± 15.0	70.2 ± 15.7	72.0 ± 16.0
Sd-LDL-C	(mg/dL)	22.4 ± 12.1	19.8 ± 8.8	18.8 ± 8.5	18.6 ± 7.1	18.6 ± 7.1	19.0 ± 7.0
OxLDL	(U/mL)	7.38 ± 4.96	7.04 ± 4.98	7.25 ± 5.74	7.41 ± 5.53	7.71 ± 5.41	8.38 ± 5.46
TG	(mg/dL)	69.8 ± 31.2	92.1 ± 41.0*	103.9 ± 51.4†	72.9 ± 40.4	70.7 ± 34.3	53.9 ± 23.8
Non-HDL-C	(mg/dL)	112.3 ± 30.1	112.0 ± 29.9	112.0 ± 29.3	112.0 ± 28.4	113.8 ± 28.7	116.3 ± 29.4
RemL-C	(mg/dL)	3.51 ± 1.84	4.35 ± 2.11	4.29 ± 2.46	3.90 ± 2.38	3.22 ± 1.61	2.98 ± 1.40
RLP-C	(mg/dL)	3.20 ± 1.30	4.22 ± 1.91*	5.01 ± 2.42‡	3.88 ± 1.94	3.03 ± 1.02	2.82 ± 0.88
RLP-TG	(mg/dL)	16.3 ± 4.0	25.5 ± 14.4†	32.6 ± 21.8‡	21.1 ± 12.3	15.8 ± 3.4	15.3 ± 2.0
ApoA-I	(mg/dL)	161.2 ± 26.6	159.8 ± 27.3	158.7 ± 25.2	160.3 ± 25.2	163.3 ± 26.4	165.7 ± 27.0
ApoA-II	(mg/dL)	37.6 ± 6.0	37.3 ± 6.2	36.8 ± 6.0	37.4 ± 5.9	37.7 ± 5.9	38.4 ± 6.1
ApoB	(mg/dL)	66.6 ± 15.3	65.7 ± 15.1	65.0 ± 14.5	66.2 ± 14.5	67.9 ± 14.8	69.3 ± 15.2
ApoC-II	(mg/dL)	3.2 ± 1.2	3.3 ± 1.2	3.3 ± 1.2	3.3 ± 1.2	3.3 ± 1.1	3.3 ± 1.1
ApoC-III	(mg/dL)	9.5 ± 2.4	9.8 ± 2.5	9.4 ± 2.3	9.2 ± 2.2	9.0 ± 2.1	9.0 ± 2.2
ApoE	(mg/dL)	4.3 ± 1.1	4.3 ± 1.1	4.3 ± 1.0	4.2 ± 1.1	4.1 ± 1.0	4.2 ± 1.1
Non-HDL-C/HDL-C		1.70 ± 0.73	1.75 ± 0.75	1.80 ± 0.75	1.75 ± 0.76	1.73 ± 0.74	1.72 ± 0.73
LDL-C/HDL-C		1.50 ± 0.60	1.50 ± 0.61	1.52 ± 0.61	1.50 ± 0.61	1.51 ± 0.60	1.50 ± 0.60
ApoB/apoA-I		0.43 ± 0.13	0.42 ± 0.13	0.42 ± 0.13	0.43 ± 0.13	0.43 ± 0.13	0.43 ± 0.13
Non-HDL-C/apo B		1.67 ± 0.10	1.69 ± 0.10	1.71 ± 0.11	1.68 ± 0.10	1.67 ± 0.10	1.67 ± 0.10
TG/apoB		1.06 ± 0.44	1.41 ± 0.56§	1.61 ± 0.71‡	1.25 ± 0.61	0.93 ± 0.40	0.79 ± 0.32
Plasma glucose	(mg/dL)	89.9 ± 5.7	96.9 ± 20.0§	87.5 ± 10.8	87.6 ± 4.9	88.1 ± 5.7	87.2 ± 5.7
Insulin	(µU/mL)	5.6 ± 2.4	42.4 ± 24.6‡	18.5 ± 14.1‡	5.0 ± 2.2	4.2 ± 2.1	3.8 ± 1.7

* Correspondence: fujioka@nutr.kobegakuin.ac.jp
[1]Division of Clinical Nutrition, Faculty of Nutrition, Kobe Gakuin University,
518 Arise, Ikawadani-cho, Nishi-ku, Kobe 651-2180, Japan
Full list of author information is available at the end of the article

BioMed Central

Table 1 Lipid and glucose parameters for before and 1 – 8 h after loading with test meal (Continued)

B. Men

TC	(mg/dL)	183.1 ± 33.8	181.4 ± 34.5	180.0 ± 33.3	182.4 ± 32.5	185.0 ± 33.2	189.5 ± 34.9
LDL-C	(mg/dL)	101.1 ± 28.2	99.0 ± 27.5	99.3 ± 27.7	99.8 ± 26.9	102.7 ± 27.8	105.3 ± 28.8
HDL-C	(mg/dL)	66.3 ± 16.7	64.7 ± 17.4	62.5 ± 15.5	65.1 ± 17.2	66.5 ± 17.4	68.3 ± 17.9
Sd-LDL-C	(mg/dL)	23.9 ± 11.0	22.2 ± 10.2	21.4 ± 9.5	20.4 ± 9.0	19.8 ± 8.0	20.6 ± 7.8
OxLDL	(U/mL)	7.98 ± 5.48	7.91 ± 5.54	8.12 ± 6.19	8.32 ± 6.11	8.70 ± 6.22	9.44 ± 6.12
TG	(mg/dL)	78.9 ± 36.0	106.3 ± 45.1	119.5 ± 58.9[†]	94.8 ± 51.2	68.6 ± 33.7	60.2 ± 28.6
Non-HDL-C	(mg/dL)	116.8 ± 32.5	116.8 ± 32.2	117.5 ± 31.8	117.3 ± 31.1	118.5 ± 31.2	121.2 ± 32.5
RemL-C	(mg/dL)	4.08 ± 2.13	4.99 ± 2.42	5.16 ± 2.81	4.69 ± 2.80	3.67 ± 1.91	3.36 ± 1.66
RLP-C	(mg/dL)	3.62 ± 1.51	5.00 ± 2.03*	5.82 ± 2.76[‡]	4.53 ± 2.23	3.31 ± 1.13	3.04 ± 1.01
RLP-TG	(mg/dL)	17.3 ± 5.1	30.0 ± 16.7[§]	37.8 ± 26.2[‡]	24.7 ± 15.2	16.4 ± 4.5	15.6 ± 2.6
ApoA-I	(mg/dL)	155.7 ± 29.2	154.4 ± 29.9	154.3 ± 28.7	155.2 ± 29.0	157.9 ± 29.4	160.6 ± 30.4
ApoA-II	(mg/dL)	33.8 ± 6.7	38.7 ± 6.8	38.4 ± 6.6	38.8 ± 6.5	39.1 ± 6.7	39.8 ± 6.8
ApoB	(mg/dL)	68.8 ± 16.3	68.3 ± 16.3	67.5 ± 15.6	68.8 ± 15.8	70.5 ± 16.0	71.8 ± 16.7
ApoC-II	(mg/dL)	3.5 ± 1.1	3.6 ± 1.1	3.6 ± 1.2	3.6 ± 1.2	3.6 ± 1.1	3.5 ± 1.1
ApoC-III	(mg/dL)	9.7 ± 2.6	10.2 ± 2.8	9.8 ± 2.7	9.5 ± 2.5	9.2 ± 2.3	9.2 ± 2.4
ApoE	(mg/dL)	4.1 ± 1.1	4.1 ± 1.1	4.2 ± 1.0	4.0 ± 1.1	3.9 ± 1.0	4.0 ± 1.0
Non-HDL-C/HDL-C		1.90 ± 0.85	1.96 ± 0.88	2.02 ± 0.87	1.96 ± 0.89	1.94 ± 0.86	1.92 ± 0.86
LDL-C/HDL-C		1.64 ± 0.71	1.66 ± 0.72	1.70 ± 0.70	1.66 ± 0.72	1.67 ± 0.71	1.66 ± 0.71
ApoB/apoA-I		0.46 ± 0.15	0.46 ± 0.15	0.46 ± 0.15	0.46 ± 0.16	0.46 ± 0.15	0.46 ± 0.15
Non-HDL-C/apo B		1.69 ± 0.10	1.70 ± 0.11	1.73 ± 0.12	1.70 ± 0.11	1.67 ± 0.10	1.68 ± 0.11
TG/apoB		1.17 ± 0.52	1.58 ± 0.63	1.79 ± 0.84[†]	1.41 ± 0.73	1.00 ± 0.49	0.86 ± 0.39
Plasma glucose	(mg/dL)	91.1 ± 5.9	97.7 ± 19.9	85.7 ± 9.7	89.2 ± 4.6	88.7 ± 5.9	87.7 ± 5.9
Insulin	(μU/mL)	5.0 ± 2.1	33.6 ± 13.7[‡]	11.6 ± 7.4[†]	4.5 ± 2.0	3.8 ± 2.3	3.7 ± 1.8

C. Women

TC	(mg/dL)	181.4 ± 32.3	178.6 ± 31.3	175.7 ± 29.1	177.6 ± 27.1	182.7 ± 30.0	186.5 ± 29.6
LDL-C	(mg/dL)	95.1 ± 23.3	92.6 ± 22.6	90.6 ± 21.8	92.5 ± 21.4	95.7 ± 22.2	97.7 ± 22.1
HDL-C	(mg/dL)	75.3 ± 12.0	73.2 ± 10.9	71.3 ± 10.3	72.8 ± 10.4	75.4 ± 11.6	77.0 ± 11.6
Sd-LDL-C	(mg/dL)	20.3 ± 13.6	16.5 ± 4.9	15.3 ± 5.3	16.1 ± 4.6	16.8 ± 5.5	16.7 ± 5.2
OxLDL	(U/mL)	6.55 ± 4.15	5.86 ± 3.91	6.06 ± 4.99	6.17 ± 4.48	6.37 ± 3.83	6.92 ± 4.10
TG	(mg/dL)	57.3 ± 16.8	72.7 ± 24.6	82.6 ± 28.3[ǁ]	63.7 ± 17.0	52.8 ± 12.4	45.2 ± 10.3
Non-HDL-C	(mg/dL)	106.1 ± 25.9	105.4 ± 25.8	104.4 ± 24.2	104.8 ± 23.2	107.3 ± 24.3	109.5 ± 23.9
RemL-C	(mg/dL)	2.73 ± 0.95	3.47 ± 1.16	3.11 ± 1.13	2.83 ± 0.95	2.60 ± 0.77	2.45 ± 0.69
RLP-C	(mg/dL)	2.62 ± 0.60	3.16 ± 1.06	3.90 ± 1.22[‡]	2.98 ± 0.88	2.66 ± 0.72	2.52 ± 0.54
RLP-TG	(mg/dL)	15	19.4 ± 7.0	25.5 ± 11.0[‡]	16.2 ± 2.1	15.0 ± 0.2	15
ApoA-I	(mg/dL)	168.7 ± 21.0	167.3 ± 21.8	164.8 ± 18.5	167.3 ± 17.3	170.7 ± 20.1	172.7 ± 20.3
ApoA-II	(mg/dL)	36.0 ± 4.6	35.4 ± 4.7	34.6 ± 4.4	35.3 ± 4.3	35.8 ± 4.1	36.5 ± 4.5
ApoB	(mg/dL)	63.7 ± 13.6	62.2 ± 12.9	61.5 ± 12.5	62.6 ± 12.2	64.4 ± 12.6	65.8 ± 12.4
ApoC-II	(mg/dL)	2.8 ± 1.1	2.9 ± 1.1	2.9 ± 1.1	2.9 ± 1.0	2.9 ± 1.0	2.9 ± 1.1
ApoC-III	(mg/dL)	9.1 ± 2.0	9.3 ± 2.0	8.9 ± 1.7	8.8 ± 1.6	8.6 ± 1.8	8.7 ± 1.8
ApoE	(mg/dL)	4.7 ± 1.0	4.6 ± 1.1	4.5 ± 1.1	4.5 ± 1.1	4.5 ± 1.1	4.6 ± 1.1
Non-HDL-C/HDL-C		1.43 ± 0.38	1.46 ± 0.40	1.48 ± 0.39	1.47 ± 0.40	1.45 ± 0.39	1.45 ± 0.37
LDL-C/HDL-C		1.28 ± 0.33	1.28 ± 0.33	1.29 ± 0.33	1.29 ± 0.34	1.29 ± 0.33	1.29 ± 0.32
ApoB/apoA-I		0.38 ± 0.08	0.37 ± 0.08	0.38 ± 0.08	0.38 ± 0.08	0.38 ± 0.08	0.38 ± 0.08
Non-HDL-C/apo B		1.66 ± 0.11	1.68 ± 0.09	1.69 ± 0.11	1.67 ± 0.08	1.66 ± 0.10	1.66 ± 0.10

Table 1 Lipid and glucose parameters for before and 1 – 8 h after loading with test meal (Continued)

TG/apoB		0.92 ± 0.26	$1.17 \pm 0.32^{\ddagger}$	$1.36 \pm 0.40^{\dagger}$	1.04 ± 0.29	0.84 ± 0.22	0.70 ± 0.17
Plasma glucose	(mg/dL)	88.3 ± 5.2	95.8 ± 20.6	89.9 ± 12.1	85.5 ± 5.0	87.1 ± 5.1	86.5 ± 5.7
Insulin	(μU/mL)	6.5 ± 2.6	$54.1 \pm 31.1^{\ddagger}$	$27.9 \pm 15.7^{\ddagger}$	5.6 ± 2.4	4.8 ± 1.8	3.9 ± 1.5

Apo apolipoprotein; *HDL-C* high-density lipoprotein cholesterol; *LDL-C* low-density lipoprotein cholesterol; *OxLDL* oxidized *LDL*; *RemL-C* remnant lipoprotein cholesterol measured using "MetaboLead RemL-C"; *RLP-C* remnant-like particle-cholesterol measured with "JIMRO II"; *RLP-TG* remnant-like particle-triglycerides; *Sd-LDL-C* small, dense-LDL cholesterol; *TC* total cholesterol; *TG* triglycerides. TG, RemL-C, RLP-C, RLP-TG, and TG/apoB were transformed into logarithmic values. Values are expressed as means ± SD. *$p < 0.05$, $^{\dagger}p < 0.005$, $^{\ddagger}p < 0.0001$, $^{\S}p < 0.01$, $^{\parallel}p < 0.001$, vs. time 0 (repeated ANOVA with Dunnett's test).

Author details
[1]Division of Clinical Nutrition, Faculty of Nutrition, Kobe Gakuin University, 518 Arise, Ikawadani-cho, Nishi-ku, Kobe 651-2180, Japan. [2]Section of Evidence-based Laboratory Medicine, Division of Clinical Pathology and Immunology, Department of Internal Medicine Related, Kobe University Graduate School of Medicine, Kobe, Japan. [3]Department of Clinical Laboratory, Kobe University Hospital, Kobe, Japan. [4]Department of Cardiovascular Medicine, Osaka University Graduate School of Medicine, Osaka, Japan. [5]Department of Internal Medicine, Kakogawa West City Hospital, Kakogawa, Japan. [6]Division of Clinical Laboratory, Shimane Prefectural Central Hospital, Shimane, Japan. [7]Department of Preventive Medicine and Public Health, School of Medicine, Keio University, Tokyo, Japan. [8]Division of Nutrition Guidance, Kakogawa East City Hospital, Kakogawa, Japan.

Reference
Nagata T, Sugiyama D, Kise T, Tsuji S, Ohira H, Sato I, Yamamoto M, Kohsaka H, Kawano S, Yamashita S, Ishikawa Y, Fujioka Y: **Fasting remnant lipoproteins can predict postprandial hyperlipidemia.** *Lipids in Health and Disease* 2012, **11**:146.