

(9.9% vs. 5.1%)、中央値に明らかな差は認められなかった(28.8IU/L vs. 26.0IU/L)。

次に、男女別および各年齢層において GOT 高値、GPT 高値の有無別に対象者を分類した結果を Table11、その分類別に、血圧高値、耐糖能障害、脂質異常、メタボリックシンドローム (MetS) の有病割合を検討した結果を Table12 に示す。

男性において、GOT 高値・GPT 高値の両者を認める割合は全体の 15.6%であり、GOT 高値・GPT 高値のいずれかを認める割合は全体の 31.9%であった (Table11)。血圧高値を示す割合は、GOT・GPT 高値を示す対象者の 72.5%、GOT のみ高値を示す対象者の 65.1%、GPT のみ高値を示す対象者の 72.0%、GOT・GPT とともに基準値を示す対象者の 60.0%であり、耐糖能障害を示す割合は、GOT・GPT 高値を示す対象者の 70.8%、GOT のみ高値を示す対象者の 55.8%、GPT のみ高値を示す対象者の 73.2%、GOT・GPT とともに基準値を示す対象者の 61.8%であった。また、脂質異常を示す割合は、GOT・GPT 高値を示す対象者の 73.3%、GOT のみ高値を示す対象者の 67.4%、GPT のみ高値を示す対象者の 78.1%、GOT・GPT とともに基準値を示す対象者の 70.0%であり、GOT のみ高値を示す対象者では脂質異常を認める割合が低かった。なお、メタボリックシンドローム (MetS) に関しては、GOT・GPT 高値を示す対象者の 40.0%、GOT のみ高値を示す対象者の 9.3%、GPT のみ高値を示す対象者の 41.5%、GOT・GPT とともに基準値を示す対象者の 16.6%に認められた。

一方、女性において、GOT 高値・GPT 高値の両者を認める割合は全体の 6.5%であり、GOT 高値・GPT 高値のいずれかを認める割合は全体の 14.8%であった (Table11)。血圧高値を示す割合は、GOT・GPT 高値を示す対象者の 56.9%、GOT のみ高値を示す対象者の 60.5%、GPT のみ高値を示す対象者の 66.7%、

GOT・GPT とともに基準値を示す対象者の 42.6%であり、耐糖能障害を示す割合は、GOT・GPT 高値を示す対象者の 68.1%、GOT のみ高値を示す対象者の 44.2%、GPT のみ高値を示す対象者の 77.1%、GOT・GPT とともに基準値を示す対象者の 53.7%であった。また、脂質異常を示す割合は、GOT・GPT 高値を示す対象者の 73.6%、GOT のみ高値を示す対象者の 58.1%、GPT のみ高値を示す対象者の 89.6%、GOT・GPT とともに基準値を示す対象者の 71.1%であった。なお、メタボリックシンドローム (MetS) に関しては、GOT・GPT 高値を示す対象者の 8.3%、GOT のみ高値を示す対象者の 0%、GPT のみ高値を示す対象者の 12.5%、GOT・GPT とともに基準値を示す対象者の 4.4%に認められ、GOT のみ高値を示す対象者ではメタボリックシンドローム (MetS) を有する割合は低かった。

2-3. まとめ

1. 男性では CKD+ と CKD- の対象者で血圧高値および耐糖能障害の有病率に差は無かった。CKD+ のうち 94.4% は血圧高値、耐糖能障害、脂質異常のいずれかを有していたが、この割合は CKD- (93.8%) と差が無かった。
2. 女性では CKD+ の対象者は CKD- に比べて血圧高値・耐糖能障害のいずれかを認める割合がやや高かった (85.9% vs. 71.7%)。CKD+ のうち 97.0% は血圧高値、耐糖能異常、脂質異常のいずれかを有しており、この割合は非 CKD- (88.4%) よりやや高かった。
3. 男性ではメタボリックシンドロームの有病率は CKD+ と CKD- で差は無かった。一方、女性では CKD+ の対象者は CKD- に比べてメタボリックシンドロームの有病率が高かった。
4. 尿蛋白陽性の割合は男女とも CKD+ の対象者は CKD- に比べて高かったが、CKD+ における割合は男性で 11.2%、女性で

3. 0%程度であった。
5. 飲酒習慣は男女とも γ -GTP との関連が、GOT (AST)、GPT (ALT) との関連と比較して明確であった。
6. 男性では GOT 単独高値の頻度は、GPT 単独高値や GOT 高値かつ GPT 高値に比べて低い。女性ではこの 3 群の頻度に差はない。
7. 男女でも GOT 単独高値群では、GPT 単独高値や GOT 高値かつ GPT 高値に比べて耐糖能異常、脂質異常、メタボリックシンドロームの有病率が低かった。

D. 考察

腎機能検査とメタボリックシンドローム（構成因子）との関連については、研究 1、研究 2 に共通して、男性では CKD 有り群は、CKD 無し群と比べて血圧高値の有病率に差は無く、また、CKD 有り群と CKD 無し群との間に、血圧高値、耐糖能障害、脂質異常のいずれかを有する者の頻度に差は無かった。一方、女性では CKD 有り群は CKD 無し群に比べて血圧高値・耐糖能障害のいずれかを認める割合がやや高く、CKD 有り群は CKD 無し群と比べて血圧高値、耐糖能異常、脂質異常のいずれかを有する者の頻度がやや高かった。さらに、男性ではメタボリックシンドロームの有病率は CKD 有り群と CKD 無し群とで差は無かったが、女性では CKD 有り群は CKD 無し群に比べてメタボリックシンドロームの有病率が高かった。以上より、血清クレアチニンと年齢・性別から算出される eGFR 値に基づく CKD の有無とメタボリックシンドローム（構成因子）との関連は、女性でより明確であると考えられた。CKD 有り群での尿蛋白陽性者の頻度は、男性で 11～13%、女性で 3～4%程度であり、地域集団における CKD 有り群での尿蛋白陽性者の頻度はそれほど高くないと考えられた。

肝機能検査と飲酒習慣との関連については、研究 1、研究 2 に共通して、飲酒習慣は男女とも γ -GTP との関連が GOT (AST)、GPT (ALT) と比較して明確であり、 γ -GTP は飲酒習慣の指標としての意義があると考えられた。肝機能検査とメタボリックシンドローム（構成因子）との関連については、研究 1、研究 2 に共通して、男女いずれにおいても GOT 単独高値群は、GPT 単独高値や GOT 高値かつ GPT 高値に比べて耐糖能異常、脂質異常、メタボリックシンドロームの有病率は低く、メタボリックシンドロームとの関連性は GPT と比較して低いと考えられた。

E. 結論

既存の 1 地域コホート集団を対象として、特定健診導入前と導入後、それぞれの集団について、腎機能検査・肝機能検査とメタボリックシンドローム（構成因子）、飲酒習慣との関連を断面調査により検討した結果、女性における CKD とメタボリックシンドローム（構成因子）との関連、および γ -GTP と飲酒量が認められ、血清クレアチニン、 γ -GTP は健診項目として有用であると考えられた。一方、GOT (AST) は、GPT と比較して、メタボリックシンドロームとの関連性は低いと考えられた。

F. 健康危険情報

なし

G. 研究発表

1. 論文発表 なし
2. 学会発表 なし

H. 知的所有権の取得状況

なし

I. 研究協力者

崔仁哲（大阪大学大学院公衆衛生学）

山岸良匡（筑波大学医学医療系社会健康学）

陣内裕成（大阪大学大学院医学系研究科博士課程）

白川透（大阪大学医学部）

Table1.

Table 1-A. 40-74 years, Male	Total	CKD(+)	CKD(-)
Number	1201	71	1130
Age (years), mean (sd)	58.8 (9.1)	64.4 (6.3)	58.5 (9.2)
Metabolic syndrome, n (%)	242 (20.3%)	15 (21.1%)	227 (20.2%)
BMI (kg/m2), mean (sd)	23.6 (3.0)	24.2 (3.1)	23.6 (3.0)
Blood pressure			
SBP (mm Hg), mean (sd)	133.0 (16.6)	134.2 (18.9)	133.0 (16.4)
DBP (mm Hg), mean (sd)	82.3 (11.1)	81.7 (12.1)	82.4 (11.0)
Classification of hypertension			
Normal blood pressure, n (%)	414 (34.5%)	24 (33.8%)	390 (34.5%)
Normal-high blood pressure, n (%)	318 (26.5%)	16 (22.5%)	302 (26.7%)
Hypertension, n (%)	469 (39.1%)	31 (43.7%)	438 (38.8%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	123.2 (49.1)	130.3 (51.6)	122.7 (48.9)
Fasting PG (mg/dL), mean (sd)	104.8 (20.6)	120.1 (34.2)	103.9 (19.3)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	899 (75.0%)	49 (69.0%)	850 (75.4%)
Impaired glucose tolerance, n (%)	207 (17.3%)	9 (12.7%)	198 (17.6%)
Diabetes, n (%)	93 (7.8%)	13 (18.3%)	80 (7.1%)
Abnormal BP or glucose metabolism	902 (75.2%)	52 (73.2%)	850 (75.4%)
Abnormal BP and glucose metabolism	223 (18.6%)	19 (26.8%)	204 (18.1%)
Renal function			
Estimated GFR (ml/min), mean (sd)	85.0 (18.4)	51.9 (9.1)	87.1 (16.7)
Proteinuria, n (%)	31 (2.6%)	9 (12.7%)	22 (2.0%)
Serum creatinine (mg/dL), mean (sd)	0.8 (0.2)	1.2 (0.4)	0.7 (0.1)

Table 1-B. 40-64 years, Male	Total	CKD(+)	CKD(-)
Number	767	30	737
Age (years), mean (sd)	53.5 (6.9)	58.5 (4.6)	53.3 (6.9)
Metabolic syndrome, n (%)	168 (22.0%)	7 (23.3%)	161 (22.0%)
BMI (kg/m2), mean (sd)	23.9 (2.9)	24.6 (3.1)	23.9 (2.9)
Blood pressure			
SBP (mm Hg), mean (sd)	131.3 (16.0)	128.1 (16.5)	131.4 (16.0)
DBP (mm Hg), mean (sd)	83.3 (11.2)	81.4 (11.9)	83.4 (11.2)
Classification of hypertension			
Normal blood pressure, n (%)	279 (36.4%)	12 (40.0%)	267 (36.2%)
Normal-high blood pressure, n (%)	210 (27.4%)	9 (30.0%)	201 (27.3%)
Hypertension, n (%)	278 (36.2%)	9 (30.0%)	269 (36.5%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	120.4 (49.2)	108.8 (21.8)	120.8 (50.0)
Fasting PG (mg/dL), mean (sd)	105.7 (20.0)	128.5 (40.2)	104.8 (18.5)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	591 (77.2%)	23 (76.7%)	568 (77.2%)
Impaired glucose tolerance, n (%)	126 (16.4%)	4 (13.3%)	122 (16.6%)
Diabetes, n (%)	49 (6.4%)	3 (10.0%)	46 (6.3%)
Abnormal BP or glucose metabolism	551 (71.9%)	20 (66.7%)	531 (72.2%)
Abnormal BP and glucose metabolism	120 (15.7%)	5 (16.7%)	115 (15.6%)
Renal function			
Estimated GFR (ml/min), mean (sd)	88.3 (18.4)	55.4 (6.9)	89.6 (17.4)
Proteinuria, n (%)	17 (2.2%)	2 (6.7%)	15 (2.0%)
Serum creatinine (mg/dL), mean (sd)	0.8 (0.1)	1.1 (0.2)	0.7 (0.1)

Table 1-C. 65-74 years, Male	Total	CKD(+)	CKD(-)
Number	396	41	355
Age (years), mean (sd)	68.7 (2.5)	68.8 (2.7)	68.7 (2.5)
Metabolic syndrome, n (%)	68 (17.3%)	8 (19.5%)	60 (17.1%)
BMI (kg/m2), mean (sd)	23.1 (3.0)	23.8 (3.1)	23.0 (3.0)
Blood pressure			
SBP (mm Hg), mean (sd)	136.6 (17.3)	138.7 (19.4)	136.4 (17.0)
DBP (mm Hg), mean (sd)	80.5 (10.7)	82.0 (12.4)	80.3 (10.5)
Classification of hypertension			
Normal blood pressure, n (%)	121 (30.6%)	12 (29.3%)	109 (30.7%)
Normal-high blood pressure, n (%)	101 (25.5%)	7 (17.1%)	94 (26.5%)
Hypertension, n (%)	174 (43.9%)	22 (53.7%)	152 (42.8%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	128.5 (49.4)	145.0 (60.6)	126.7 (47.7)
Fasting PG (mg/dL), mean (sd)	102.2 (24.1)	109.0 (27.6)	101.1 (24.1)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	279 (70.6%)	26 (63.4%)	253 (71.5%)
Impaired glucose tolerance, n (%)	73 (18.5%)	5 (12.2%)	68 (19.2%)
Diabetes, n (%)	43 (10.9%)	10 (24.4%)	33 (9.3%)
Abnormal BP or glucose metabolism	322 (81.5%)	32 (78.1%)	290 (81.9%)
Abnormal BP and glucose metabolism	98 (24.8%)	14 (34.2%)	84 (23.7%)
Renal function			
Estimated GFR (ml/min), mean (sd)	78.9 (17.2)	49.3 (9.7)	82.3 (14.4)
Proteinuria, n (%)	13 (3.3%)	7 (17.1%)	6 (1.7%)
Serum creatinine (mg/dL), mean (sd)	0.8 (0.3)	1.2 (0.6)	0.7 (0.1)

Table2.

Table 2-A. 40-74 years, Female	Total	CKD(+)	CKD(-)
Number	1798	93	1705
Age (years), mean (sd)	57.4 (9.4)	67.2 (6.6)	56.9 (9.2)
Metabolic syndrome, n (%)	294 (16.5%)	29 (31.5%)	265 (15.7%)
BMI (kg/m2), mean (sd)	23.7 (3.3)	24.7 (3.4)	23.7 (3.3)
Blood pressure			
SBP (mm Hg), mean (sd)	130.5 (16.8)	137.7 (18.3)	130.1 (16.6)
DBP (mm Hg), mean (sd)	78.6 (10.6)	79.4 (11.4)	78.5 (10.5)
Classification of hypertension			
Normal blood pressure, n (%)	795 (44.3%)	25 (26.9%)	770 (45.2%)
Normal-high blood pressure, n (%)	507 (28.2%)	30 (32.3%)	477 (28.0%)
Hypertension, n (%)	494 (27.5%)	38 (40.9%)	456 (26.8%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	110.5 (35.0)	125.4 (53.6)	109.6 (33.5)
Fasting PG (mg/dL), mean (sd)	99.5 (25.0)	114.0 (36.0)	98.8 (24.3)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	1556 (86.6%)	70 (75.3%)	1486 (87.2%)
Impaired glucose tolerance, n (%)	157 (8.7%)	11 (11.8%)	146 (8.6%)
Diabetes, n (%)	84 (4.7%)	12 (12.9%)	72 (4.2%)
Abnormal BP or glucose metabolism	1139 (63.5%)	78 (83.9%)	1061 (62.3%)
Abnormal BP and glucose metabolism	185 (10.3%)	19 (20.4%)	166 (9.8%)
Renal function			
Estimated GFR (ml/min), mean (sd)	89.2 (20.8)	54.7 (9.3)	91.1 (19.6)
Proteinuria, n (%)	18 (1.0%)	4 (4.4%)	14 (0.8%)
Serum creatinine (mg/dL), mean (sd)	0.6 (0.2)	0.9 (0.6)	0.5 (0.1)

Table 2-B. 40-64 years, Female	Total	CKD(+)	CKD(-)
Number	1221	15	1206
Age (years), mean (sd)	52.3 (6.7)	53.7 (4.9)	52.3 (6.7)
Metabolic syndrome, n (%)	176 (14.5%)	3 (20.0%)	173 (14.5%)
BMI (kg/m2), mean (sd)	23.7 (3.2)	24.8 (3.5)	23.7 (3.2)
Blood pressure			
SBP (mm Hg), mean (sd)	128.2 (16.2)	134.3 (12.6)	128.1 (16.3)
DBP (mm Hg), mean (sd)	79.0 (10.6)	81.2 (11.9)	79.0 (10.6)
Classification of hypertension			
Normal blood pressure, n (%)	605 (49.6%)	5 (33.3%)	600 (49.8%)
Normal-high blood pressure, n (%)	316 (25.9%)	4 (26.7%)	312 (25.9%)
Hypertension, n (%)	299 (24.5%)	6 (40.0%)	293 (24.3%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	106.8 (31.9)	121.7 (41.0)	106.6 (31.8)
Fasting PG (mg/dL), mean (sd)	97.2 (21.6)	96.0 (-)	97.2 (21.7)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	1088 (89.1%)	12 (80.0%)	1076 (89.2%)
Impaired glucose tolerance, n (%)	97 (7.9%)	2 (13.3%)	95 (7.9%)
Diabetes, n (%)	36 (2.9%)	1 (6.7%)	35 (2.9%)
Abnormal BP or glucose metabolism	681 (55.8%)	10 (66.7%)	671 (55.7%)
Abnormal BP and glucose metabolism	99 (8.1%)	3 (20.0%)	96 (8.0%)
Renal function			
Estimated GFR (ml/min), mean (sd)	93.1 (20.4)	53.3 (7.9)	93.6 (20.1)
Proteinuria, n (%)	13 (1.1%)	1 (7.1%)	12 (1.0%)
Serum creatinine (mg/dL), mean (sd)	0.5 (0.1)	0.9 (0.2)	0.5 (0.1)

Table 2-C. 65-74 years, Female	Total	CKD(+)	CKD(-)
Number	513	76	437
Age (years), mean (sd)	68.7 (2.6)	69.9 (2.2)	68.4 (2.6)
Metabolic syndrome, n (%)	103 (20.3%)	25 (33.3%)	78 (18.1%)
BMI (kg/m2), mean (sd)	23.8 (3.3)	24.5 (3.0)	23.7 (3.3)
Blood pressure			
SBP (mm Hg), mean (sd)	135.8 (16.9)	138.6 (19.4)	135.3 (16.5)
DBP (mm Hg), mean (sd)	77.5 (10.5)	79.0 (11.5)	77.3 (10.3)
Classification of hypertension			
Normal blood pressure, n (%)	161 (31.4%)	19 (25.0%)	142 (32.6%)
Normal-high blood pressure, n (%)	172 (33.6%)	25 (32.9%)	147 (33.7%)
Hypertension, n (%)	179 (35.0%)	32 (42.1%)	147 (33.7%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	117.2 (38.1)	123.1 (50.2)	116.2 (35.7)
Fasting PG (mg/dL), mean (sd)	111.3 (36.7)	117.0 (38.5)	109.7 (36.9)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	419 (81.8%)	57 (75.0%)	362 (83.0%)
Impaired glucose tolerance, n (%)	51 (10.0%)	9 (11.8%)	42 (9.6%)
Diabetes, n (%)	42 (8.2%)	10 (13.2%)	32 (7.3%)
Abnormal BP or glucose metabolism	419 (82.0%)	67 (88.2%)	352 (80.9%)
Abnormal BP and glucose metabolism	73 (14.3%)	15 (19.7%)	58 (13.3%)
Renal function			
Estimated GFR (ml/min), mean (sd)	80.2 (19.1)	55.0 (9.6)	84.6 (16.9)
Proteinuria, n (%)	4 (0.8%)	3 (4.0%)	1 (0.2%)
Serum creatinine (mg/dL), mean (sd)	0.6 (0.3)	0.9 (0.6)	0.6 (0.1)

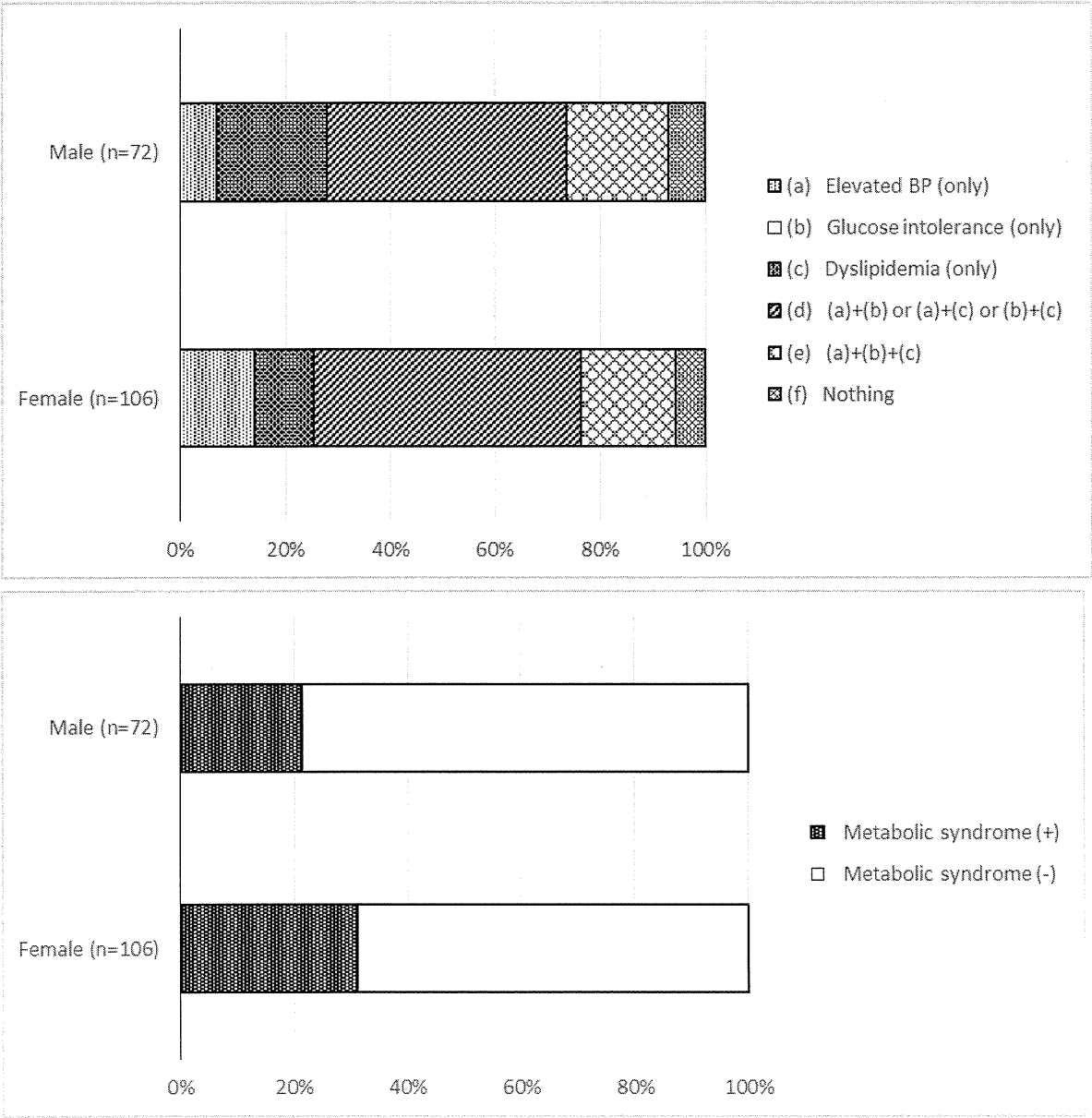


Figure 1

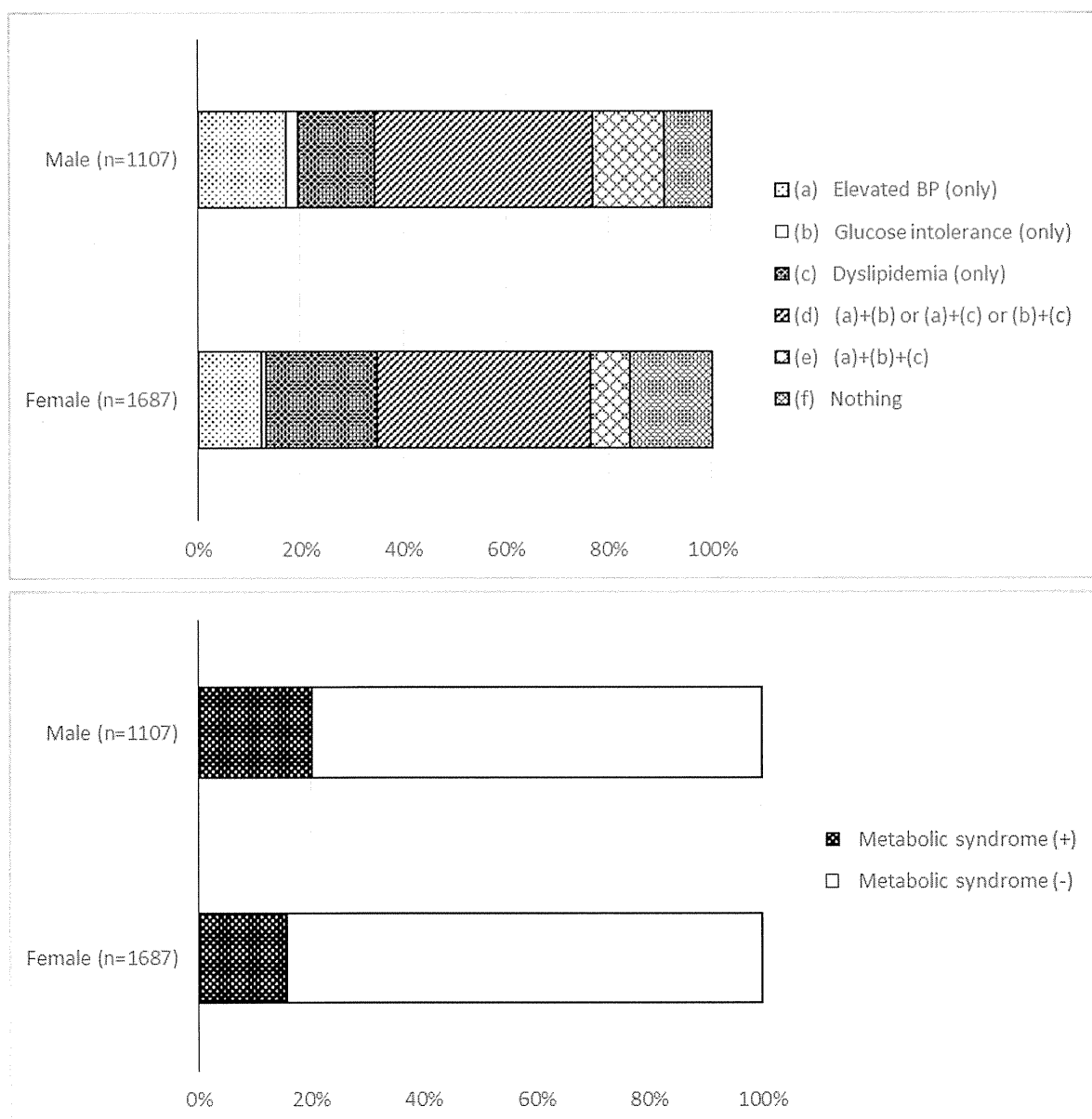


Figure 2

Table 3-A. Liver Function, 40-74 years, Male

	Total	Never drinker	Past drinker	Current drinker
Number	1230	274	107	849
Age (years), mean (sd)	59.2 (9.3)	59.9 (9.3)	61.7 (8.1)	58.7 (9.4)
Metabolic syndrome, n (%)	247 (20.2%)	51 (18.8%)	24 (22.6%)	172 (20.4%)
BMI (kg/m ²), mean (sd)	23.6 (3.0)	59.9 (9.3)	23.6 (3.2)	23.6 (2.9)
Obesity (BMI≥25), n (%)	375 (30.5%)	82 (29.9%)	36 (33.6%)	257 (30.3%)
Liver function				
GOT (IU/L), mean (sd)	27.7 (12.8)	25.8 (10.2)	27.7 (12.6)	28.3 (13.6)
High (GOT>30), n (%)	287 (23.3%)	51 (18.6%)	21 (19.6%)	215 (25.3%)
GPT (IU/L), median (range)	22.0 (5.0-226.0)	27.7 (19.2-22.0)	27.3 (18.1-22.0)	27.2 (20.2-22.0)
High (GPT>30), n (%)	314 (25.5%)	74 (27.0%)	31 (29.0%)	209 (24.6%)
High GOT or high GPT, n (%)	402 (32.7%)	85 (31.0%)	38 (35.5%)	279 (32.9%)
High GOT and high GPT, n (%)	199 (16.2%)	40 (14.6%)	14 (13.1%)	145 (17.1%)
γ-GTP (IU/L), median (range)	23.0 (6.0-469.0)	20.3 (15.0-16.0)	26.4 (30.3-19.0)	42.1 (47.1-27.0)
High (γ-GTP>50), n (%)	215 (17.5%)	11 (4.0%)	6 (5.6%)	198 (23.3%)
Amount of ethanol (g/day), median (range)	19.7 (0.0-139.3)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	23.0 (0.0-139.3)

Table 3-A. Liver Function, 40-74 years, Male, current drinker

	Total	High Ethanol	Low Ethanol
Number	849	416	433
Amount of ethanol (g/day), median (range)	23.0 (0.0-139.3)	46.0 (23.7-139.3)	19.7 (0.0-23.0)
Age (years), mean (sd)	58.7 (9.4)	58.5 (9.2)	58.9 (9.6)
Metabolic syndrome, n (%)	172 (20.4%)	90 (21.8%)	82 (19.0%)
Liver function			
GOT (IU/L), mean (sd)	28.3 (13.6)	29.2 (15.2)	27.3 (11.8)
High (GOT>30), n (%)	215 (25.3%)	122 (29.3%)	93 (21.5%)
GPT (IU/L), median (range)	22.0 (5.0-226.0)	27.3 (19.1-22.0)	27.1 (21.3-21.0)
High (GPT>30), n (%)	209 (24.6%)	112 (26.9%)	97 (22.4%)
High GOT or high GPT, n (%)	279 (32.9%)	155 (37.3%)	124 (28.6%)
High GOT and high GPT, n (%)	145 (17.1%)	79 (19.0%)	66 (15.2%)
γ-GTP (IU/L), median (range)	27.0 (6.0-469.0)	53.8 (59.9-33.0)	30.9 (25.7-23.0)
High (γ-GTP>50), n (%)	198 (23.3%)	136 (32.7%)	62 (14.3%)

Table 3-B. Liver Function, 40-64 years, Male

	Total	Never drinker	Past drinker	Current drinker
Number	804	173	63	568
Age (years), mean (sd)	54.0 (7.1)	54.4 (7.0)	56.7 (6.6)	53.6 (7.1)
Metabolic syndrome, n (%)	174 (21.8%)	31 (18.0%)	20 (32.3%)	123 (21.8%)
BMI (kg/m ²), mean (sd)	23.9 (2.9)	54.4 (7.0)	24.0 (3.3)	23.9 (2.9)
Obesity (BMI $\geq$ 25), n (%)	268 (33.3%)	56 (32.4%)	26 (41.3%)	186 (32.8%)
Liver function				
GOT (IU/L), mean (sd)	27.6 (12.4)	26.4 (10.8)	27.5 (8.8)	28.0 (13.1)
High (GOT>30), n (%)	196 (24.4%)	36 (20.8%)	15 (23.8%)	145 (25.5%)
GPT (IU/L), median (range)	24.0 (9.0-226.0)	31.0 (21.4-24.0)	29.4 (15.4-25.0)	29.5 (21.1-24.0)
High (GPT>30), n (%)	254 (31.6%)	59 (34.1%)	25 (39.7%)	170 (29.9%)
High GOT or high GPT, n (%)	296 (36.8%)	65 (37.6%)	29 (46.0%)	202 (35.6%)
High GOT and high GPT, n (%)	154 (19.2%)	30 (17.3%)	11 (17.5%)	113 (19.9%)
γ -GTP (IU/L), median (range)	26.0 (6.0-459.0)	22.6 (17.0-18.0)	31.3 (37.6-22.0)	45.9 (48.5-30.0)
High (γ -GTP>50), n (%)	169 (21.0%)	10 (5.8%)	5 (7.9%)	154 (27.1%)
Amount of ethanol (g/day), median (range)	19.7 (0.0-139.3)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	26.3 (0.0-139.3)

Table 3-B. Liver Function, 40-64 years, Male, current drinker

	Total	High Ethanol	Low Ethanol
Number	568	286	282
Amount of ethanol (g/day), median (range)	26.3 (0.0-139.3)	46.0 (26.3-139.3)	18.4 (0.0-23.0)
Age (years), mean (sd)	53.6 (7.1)	53.7 (6.9)	53.5 (7.3)
Metabolic syndrome, n (%)	123 (21.8%)	61 (21.4%)	62 (22.1%)
Liver function			
GOT (IU/L), mean (sd)	28.0 (13.1)	28.8 (13.9)	27.3 (12.3)
High (GOT>30), n (%)	145 (25.5%)	84 (29.4%)	61 (21.6%)
GPT (IU/L), median (range)	24.0 (9.0-226.0)	29.3 (19.2-24.0)	29.7 (23.0-23.5)
High (GPT>30), n (%)	170 (29.9%)	92 (32.2%)	78 (27.7%)
High GOT or high GPT, n (%)	202 (35.6%)	114 (39.9%)	88 (31.2%)
High GOT and high GPT, n (%)	113 (19.9%)	62 (21.7%)	51 (18.1%)
γ -GTP (IU/L), median (range)	30.0 (6.0-459.0)	57.6 (59.7-39.0)	33.9 (29.2-24.5)
High (γ -GTP>50), n (%)	154 (27.1%)	106 (37.1%)	48 (17.0%)

Table 3-C. Liver Function, 65-74 years, Male

	Total	Never drinker	Past drinker	Current drinker
Number	426	101	44	281
Age (years), mean (sd)	69.1 (2.8)	69.3 (2.9)	69.0 (2.8)	69.0 (2.7)
Metabolic syndrome, n (%)	73 (17.3%)	20 (20.0%)	4 (9.1%)	49 (17.6%)
BMI (kg/m ²), mean (sd)	23.1 (3.0)	69.3 (2.9)	23.0 (2.9)	23.0 (3.0)
Obesity (BMI≥25), n (%)	107 (25.1%)	26 (25.7%)	10 (22.7%)	71 (25.3%)
Liver function				
GOT (IU/L), mean (sd)	27.7 (13.7)	25.0 (9.1)	27.8 (16.7)	28.7 (14.4)
High (GOT>30), n (%)	91 (21.4%)	15 (14.9%)	6 (13.6%)	70 (24.9%)
GPT (IU/L), median (range)	19.0 (5.0-174.0)	22.1 (12.8-19.0)	24.2 (21.2-19.5)	22.5 (17.4-19.0)
High (GPT>30), n (%)	60 (14.1%)	15 (14.9%)	6 (13.6%)	39 (13.9%)
High GOT or high GPT, n (%)	106 (24.9%)	20 (19.8%)	9 (20.5%)	77 (27.4%)
High GOT and high GPT, n (%)	45 (10.6%)	10 (9.9%)	3 (6.8%)	32 (11.4%)
γ-GTP (IU/L), median (range)	19.0 (6.0-469.0)	16.3 (9.8-14.0)	19.4 (11.9-16.0)	34.5 (43.3-24.0)
High (γ-GTP>50), n (%)	46 (10.8%)	1 (1.0%)	1 (2.3%)	44 (15.7%)
Amount of ethanol (g/day), median (range)	19.7 (0.0-69.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	23.0 (1.6-69.0)

Table 3-C. Liver Function, 65-74 years, Male, current drinker

	Total	High Ethanol	Low Ethanol
Number	281	130	151
Amount of ethanol (g/day), median (range)	23.0 (1.6-69.0)	46.0 (23.7-69.0)	23.0 (1.6-23.0)
Age (years), mean (sd)	69.0 (2.7)	69.0 (2.8)	69.0 (2.7)
Metabolic syndrome, n (%)	49 (17.6%)	29 (22.7%)	20 (13.3%)
Liver function			
GOT (IU/L), mean (sd)	28.7 (14.4)	30.1 (17.6)	27.5 (10.9)
High (GOT>30), n (%)	70 (24.9%)	38 (29.2%)	32 (21.2%)
GPT (IU/L), median (range)	19.0 (5.0-174.0)	23.0 (18.2-19.0)	22.1 (16.6-19.0)
High (GPT>30), n (%)	39 (13.9%)	20 (15.4%)	19 (12.6%)
High GOT or high GPT, n (%)	77 (27.4%)	41 (31.5%)	36 (23.8%)
High GOT and high GPT, n (%)	32 (11.4%)	17 (13.1%)	15 (9.9%)
γ-GTP (IU/L), median (range)	24.0 (6.0-469.0)	45.2 (59.7-27.0)	25.2 (16.0-20.0)
High (γ-GTP>50), n (%)	44 (15.7%)	30 (23.1%)	14 (9.3%)

Table 4-A. Liver Function, 40-74 years, Female

	Total	Never drinker	Past drinker	Current drinker
Number	1845	1606	36	203
Age (years), mean (sd)	57.8 (9.6)	58.1 (9.6)	60.7 (9.6)	55.3 (9.4)
Metabolic syndrome, n (%)	304 (16.6%)	275 (17.3%)	9 (25.0%)	20 (10.0%)
BMI (kg/m2), mean (sd)	23.7 (3.3)	58.1 (9.6)	23.5 (4.0)	23.3 (3.3)
Obesity (BMI $\geq$ 25), n (%)	580 (31.4%)	518 (32.3%)	11 (30.6%)	51 (25.1%)
Liver function				
GOT (IU/L), mean (sd)	24.5 (11.3)	24.4 (10.1)	23.8 (7.9)	25.5 (18.7)
High (GOT>30), n (%)	260 (14.1%)	222 (13.8%)	5 (13.9%)	33 (16.3%)
GPT (IU/L), median (range)	18.0 (6.0-283.0)	21.4 (13.9-18.0)	20.0 (10.7-17.0)	22.3 (23.5-17.0)
High (GPT>30), n (%)	228 (12.4%)	198 (12.3%)	5 (13.9%)	25 (12.3%)
High GOT or high GPT, n (%)	329 (17.8%)	286 (17.8%)	6 (16.7%)	37 (18.2%)
High GOT and high GPT, n (%)	159 (8.6%)	134 (8.3%)	4 (11.1%)	21 (10.3%)
γ -GTP (IU/L), median (range)	11.0 (3.0-330.0)	15.4 (15.4-11.0)	18.4 (15.6-12.0)	19.7 (18.3-13.0)
High (γ -GTP>50), n (%)	51 (2.8%)	37 (2.3%)	3 (8.3%)	11 (5.4%)
Amount of ethanol (g/day), median (range)	0.0 (0.0-57.5)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	6.9 (0.0-57.5)

Table 4-A. Liver Function, 40-74 years, Female, current drinker

	Total	High Ethanol	Low Ethanol
Number	203	101	102
Amount of ethanol (g/day), median (range)	6.9 (0.0-57.5)	13.1 (7.9-57.5)	3.3 (0.0-6.9)
Age (years), mean (sd)	55.3 (9.4)	55.5 (8.8)	55.1 (9.9)
Metabolic syndrome, n (%)	20 (10.0%)	11 (11.0%)	9 (9.0%)
Liver function			
GOT (IU/L), mean (sd)	25.5 (18.7)	26.7 (24.4)	24.3 (10.4)
High (GOT>30), n (%)	33 (16.3%)	15 (14.9%)	18 (17.7%)
GPT (IU/L), median (range)	17.0 (7.0-283.0)	23.5 (29.0-18.0)	21.1 (16.5-16.0)
High (GPT>30), n (%)	25 (12.3%)	12 (11.9%)	13 (12.8%)
High GOT or high GPT, n (%)	37 (18.2%)	17 (16.8%)	20 (19.6%)
High GOT and high GPT, n (%)	21 (10.3%)	10 (9.9%)	11 (10.8%)
γ -GTP (IU/L), median (range)	13.0 (5.0-151.0)	22.6 (21.4-16.0)	16.9 (14.3-11.5)
High (γ -GTP>50), n (%)	11 (5.4%)	7 (6.9%)	4 (3.9%)

Table 4-B. Liver Function, 40-64 years, Female

	Total	Never drinker	Past drinker	Current drinker
Number	1283	1107	20	156
Age (years), mean (sd)	52.9 (7.0)	53.1 (7.0)	53.5 (6.3)	51.4 (6.7)
Metabolic syndrome, n (%)	191 (15.0%)	177 (16.1%)	5 (25.0%)	9 (5.8%)
BMI (kg/m ²), mean (sd)	23.7 (3.3)	53.1 (7.0)	23.8 (4.4)	23.0 (3.3)
Obesity (BMI $\geq$ 25), n (%)	404 (31.5%)	366 (33.1%)	6 (30.0%)	32 (20.5%)
Liver function				
GOT (IU/L), mean (sd)	24.1 (10.8)	24.1 (10.8)	23.8 (8.1)	24.4 (10.9)
High (GOT>30), n (%)	173 (13.5%)	144 (13.0%)	3 (15.0%)	26 (16.7%)
GPT (IU/L), median (range)	18.0 (6.0-165.0)	22.2 (15.2-18.0)	21.8 (11.3-19.0)	21.6 (16.1-17.0)
High (GPT>30), n (%)	178 (13.9%)	152 (13.7%)	4 (20.0%)	22 (14.1%)
High GOT or high GPT, n (%)	232 (18.1%)	198 (17.9%)	4 (20.0%)	30 (19.2%)
High GOT and high GPT, n (%)	119 (9.3%)	98 (8.9%)	3 (15.0%)	18 (11.5%)
γ -GTP (IU/L), median (range)	12.0 (3.0-330.0)	16.0 (17.2-11.0)	21.4 (17.3-15.5)	20.0 (18.8-13.0)
High (γ -GTP>50), n (%)	41 (3.2%)	30 (2.7%)	2 (10.0%)	9 (5.8%)
Amount of ethanol (g/day), median (range)	0.0 (0.0-57.5)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	6.9 (0.0-57.5)

Table 4-B. Liver Function, 40-64 years, Female, current drinker

	Total	High Ethanol	Low Ethanol
Number	156	77	79
Amount of ethanol (g/day), median (range)	6.9 (0.0-57.5)	13.1 (7.9-57.5)	3.3 (0.0-6.9)
Age (years), mean (sd)	51.4 (6.7)	51.6 (6.2)	51.1 (7.2)
Metabolic syndrome, n (%)	9 (5.8%)	6 (7.8%)	3 (3.9%)
Liver function			
GOT (IU/L), mean (sd)	24.4 (10.9)	24.7 (10.5)	24.0 (11.3)
High (GOT>30), n (%)	26 (16.7%)	12 (15.6%)	14 (17.7%)
GPT (IU/L), median (range)	17.0 (7.0-105.0)	21.6 (14.0-18.0)	21.6 (18.0-16.0)
High (GPT>30), n (%)	22 (14.1%)	10 (13.0%)	12 (15.2%)
High GOT or high GPT, n (%)	30 (19.2%)	14 (18.2%)	16 (20.3%)
High GOT and high GPT, n (%)	18 (11.5%)	8 (10.4%)	10 (12.7%)
γ -GTP (IU/L), median (range)	13.0 (5.0-151.0)	22.5 (21.7-16.0)	17.6 (15.3-12.0)
High (γ -GTP>50), n (%)	9 (5.8%)	5 (6.5%)	4 (5.1%)

Table 4-C. Liver Function, 65-74 years, Female

	Total	Never drinker	Past drinker	Current drinker
Number	562	499	16	47
Age (years), mean (sd)	69.1 (2.9)	69.2 (2.9)	69.7 (2.8)	68.3 (2.8)
Metabolic syndrome, n (%)	113 (20.4%)	98 (19.9%)	4 (25.0%)	11 (23.9%)
BMI (kg/m2), mean (sd)	23.8 (3.3)	69.2 (2.9)	23.2 (3.6)	24.2 (3.2)
Obesity (BMI≥25), n (%)	176 (31.3%)	152 (30.5%)	5 (31.3%)	19 (40.4%)
Liver function				
GOT (IU/L), mean (sd)	25.4 (12.4)	25.1 (8.2)	23.7 (7.9)	29.3 (33.5)
High (GOT>30), n (%)	87 (15.5%)	78 (15.6%)	2 (12.5%)	7 (14.9%)
GPT (IU/L), median (range)	17.0 (7.0-283.0)	19.8 (10.3-17.0)	17.8 (9.8-15.0)	24.5 (39.3-17.0)
High (GPT>30), n (%)	50 (8.9%)	46 (9.2%)	1 (6.3%)	3 (6.4%)
High GOT or high GPT, n (%)	97 (17.3%)	88 (17.6%)	2 (12.5%)	7 (14.9%)
High GOT and high GPT, n (%)	40 (7.1%)	36 (7.2%)	1 (6.3%)	3 (6.4%)
γ-GTP (IU/L), median (range)	11.0 (4.0-109.0)	14.0 (10.0-11.0)	14.8 (12.6-10.0)	18.7 (16.7-14.0)
High (γ-GTP>50), n (%)	10 (1.8%)	7 (1.4%)	1 (6.3%)	2 (4.3%)
Amount of ethanol (g/day), median (range)	0.0 (0.0-23.0)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	7.9 (0.0-23.0)

Table 4-C. Liver Function, 65-74 years, Female, current drinker

	Total	High Ethanol	Low Ethanol
Number	47	24	23
Amount of ethanol (g/day), median (range)	7.9 (0.0-23.0)	11.5 (7.9-23.0)	3.0 (0.0-6.9)
Age (years), mean (sd)	68.3 (2.8)	67.8 (2.4)	68.9 (3.1)
Metabolic syndrome, n (%)	11 (23.9%)	5 (21.7%)	6 (26.1%)
Liver function			
GOT (IU/L), mean (sd)	29.3 (33.5)	33.0 (46.5)	25.4 (6.9)
High (GOT>30), n (%)	7 (14.9%)	3 (12.5%)	4 (17.4%)
GPT (IU/L), median (range)	17.0 (7.0-283.0)	29.6 (54.3-18.5)	19.3 (9.1-16.0)
High (GPT>30), n (%)	3 (6.4%)	2 (8.3%)	1 (4.4%)
High GOT or high GPT, n (%)	7 (14.9%)	3 (12.5%)	4 (17.4%)
High GOT and high GPT, n (%)	3 (6.4%)	2 (8.3%)	1 (4.4%)
γ-GTP (IU/L), median (range)	14.0 (5.0-100.0)	22.7 (20.7-15.5)	14.5 (10.1-11.0)
High (γ-GTP>50), n (%)	2 (4.3%)	2 (8.3%)	0 (0.0%)

Table 5.

Total	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	Total
	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	
All (40-74 years)	358 (11.6%)	189 (6.1%)	184 (6.0%)	2348 (76.3%)	3079
40-64 years	273 (13.1%)	96 (4.6%)	159 (7.6%)	1562 (74.7%)	2090
65-74 years	85 (8.6%)	93 (9.4%)	25 (2.5%)	786 (79.5%)	989

Male	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	Total
	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	
All (40-74 years)	199 (16.2%)	88 (7.1%)	115 (9.3%)	830 (67.4%)	1232
40-64 years	154 (19.1%)	42 (5.2%)	100 (12.4%)	509 (63.2%)	805
65-74 years	45 (10.5%)	46 (10.8%)	15 (3.5%)	321 (75.2%)	427

Female	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	Total
	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	
All (40-74 years)	159 (8.6%)	101 (5.5%)	69 (3.7%)	1518 (82.2%)	1847
40-64 years	119 (9.3%)	54 (4.2%)	59 (4.6%)	1053 (82.0%)	1285
65-74 years	40 (7.1%)	47 (8.4%)	10 (1.8%)	465 (82.7%)	562

Table 6-1. Total

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 40-74 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	274/358 (76.5%)	131/189 (69.3%)	133/184 (72.3%)	1438/2346 (61.3%)	1976/3077 (64.2%)
Glucose intolerance	97/358 (27.1%)	37/189 (19.6%)	43/184 (23.4%)	389/2345 (16.6%)	566/3076 (18.4%)
Dyslipidemia	276/343 (80.5%)	110/174 (63.2%)	147/175 (84.0%)	1502/2282 (65.8%)	2035/2974 (68.4%)
Metabolic syndrome	114/356 (32.0%)	21/181 (11.6%)	73/182 (40.1%)	343/2336 (14.7%)	551/3055 (18.0%)

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 40-64 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	199/273 (72.9%)	55/96 (57.3%)	111/159 (69.8%)	841/1561 (53.9%)	1206/2089 (57.7%)
Glucose intolerance	67/273 (24.5%)	16/96 (16.7%)	32/159 (20.1%)	217/1561 (13.9%)	332/2089 (15.9%)
Dyslipidemia	207/261 (79.3%)	53/87 (60.9%)	125/151 (82.8%)	971/1511 (64.3%)	1356/2010 (67.5%)
Metabolic syndrome	83/272 (30.5%)	8/91 (8.8%)	64/157 (40.8%)	210/1556 (13.5%)	365/2076 (17.6%)

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 65-74 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	75/85 (88.2%)	76/93 (81.7%)	22/25 (88.0%)	597/785 (76.1%)	770/988 (77.9%)
Glucose intolerance	30/85 (35.3%)	21/93 (22.6%)	11/25 (44.0%)	172/784 (21.9%)	234/987 (23.7%)
Dyslipidemia	69/82 (84.2%)	57/87 (65.5%)	22/24 (91.7%)	531/771 (68.9%)	679/964 (70.4%)
Metabolic syndrome	31/84 (36.9%)	13/90 (14.4%)	9/25 (36.0%)	133/780 (17.1%)	186/979 (19.0%)

Table 6-2. Male

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 40-74 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	155/199 (77.9%)	68/88 (77.3%)	77/115 (67.0%)	553/830 (66.6%)	853/1232 (69.2%)
Glucose intolerance	66/199 (33.2%)	26/88 (29.6%)	28/115 (24.4%)	192/828 (23.2%)	312/1230 (25.4%)
Dyslipidemia	152/188 (80.9%)	42/79 (53.2%)	92/110 (83.6%)	511/802 (63.7%)	797/1179 (67.6%)
Metabolic syndrome	58/198 (29.3%)	13/83 (15.7%)	45/114 (39.5%)	131/829 (15.8%)	247/1224 (20.2%)

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 40-64 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	115/154 (74.7%)	29/42 (69.1%)	63/100 (63.0%)	315/509 (61.9%)	522/805 (64.8%)
Glucose intolerance	46/154 (29.9%)	11/42 (26.2%)	20/100 (20.0%)	107/508 (21.1%)	184/804 (22.9%)
Dyslipidemia	116/145 (80.0%)	21/38 (55.3%)	79/95 (83.2%)	321/484 (66.3%)	537/762 (70.5%)
Metabolic syndrome	42/153 (27.5%)	6/40 (15.0%)	39/99 (39.4%)	87/508 (17.1%)	174/800 (21.8%)

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 65-74 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	40/45 (88.9%)	39/46 (84.8%)	14/15 (93.3%)	238/321 (74.1%)	331/427 (77.5%)
Glucose intolerance	20/45 (44.4%)	15/46 (32.6%)	8/15 (53.3%)	85/320 (26.6%)	128/426 (30.0%)
Dyslipidemia	36/43 (83.7%)	21/41 (51.2%)	13/15 (86.7%)	190/318 (59.8%)	260/417 (62.4%)
Metabolic syndrome	16/45 (35.6%)	7/43 (16.3%)	6/15 (40.0%)	44/321 (13.7%)	73/424 (17.2%)

Table 6-3. Female

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 40-74 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	119/159 (74.8%)	63/101 (62.4%)	56/69 (81.2%)	885/1516 (58.4%)	1123/1845 (60.9%)
Glucose intolerance	31/159 (19.5%)	11/101 (10.9%)	15/69 (21.7%)	197/1517 (13.0%)	254/1846 (13.8%)
Dyslipidemia	124/155 (80.0%)	68/95 (71.6%)	55/65 (84.6%)	991/1480 (67.0%)	1238/1795 (69.0%)
Metabolic syndrome	56/158 (35.4%)	8/98 (8.2%)	28/68 (41.2%)	212/1507 (14.1%)	304/1831 (16.6%)

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 40-64 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	84/119 (70.6%)	26/54 (48.2%)	48/59 (81.4%)	526/1052 (50.0%)	684/1284 (53.3%)
Glucose intolerance	21/119 (17.7%)	5/54 (9.3%)	12/59 (20.3%)	110/1053 (10.5%)	148/1285 (11.5%)
Dyslipidemia	91/116 (78.5%)	32/49 (65.3%)	46/56 (82.1%)	650/1027 (63.3%)	819/1248 (65.6%)
Metabolic syndrome	41/119 (34.5%)	2/51 (3.9%)	25/58 (43.1%)	123/1048 (11.7%)	191/1276 (15.0%)

	High GOT (>30)	High GOT (>30)	Normal GOT (≤ 30)	Normal GOT (≤ 30)	
Total, 65-74 years	High GPT (>30)	Normal GPT (≤ 30)	High GPT (>30)	Normal GPT (≤ 30)	Total
Elevated BP	35/40 (87.5%)	37/47 (78.7%)	8/10 (80.0%)	359/464 (77.4%)	439/561 (78.3%)
Glucose intolerance	10/40 (25.0%)	6/47 (12.8%)	3/10 (30.0%)	87/464 (18.8%)	106/561 (18.9%)
Dyslipidemia	33/39 (84.6%)	36/46 (78.3%)	9/9 (100.0%)	341/453 (75.3%)	419/547 (76.6%)
Metabolic syndrome	15/39 (38.5%)	6/47 (12.8%)	3/10 (30.0%)	89/459 (19.4%)	113/555 (20.4%)

Table 7

Table 7-A. 40-74 years, Male	Total	CKD(+)	CKD(-)
Number	768	89	679
Age (years), mean (sd)	61.1 (8.9)	66.0 (5.7)	60.5 (9.1)
Metabolic syndrome, n (%)	173 (22.5%)	21 (23.6%)	152 (22.4%)
BMI (kg/m2), mean (sd)	23.9 (2.9)	24.7 (3.1)	23.8 (2.8)
Blood pressure			
SBP (mm Hg), mean (sd)	129.2 (18.0)	128.8 (20.9)	129.3 (17.6)
DBP (mm Hg), mean (sd)	80.0 (11.9)	79.7 (13.8)	80.1 (11.7)
Classification of hypertension			
Normal blood pressure, n (%)	343 (44.7%)	38 (42.7%)	305 (44.9%)
Normal-high blood pressure, n (%)	177 (23.0%)	22 (24.7%)	155 (22.8%)
Hypertension, n (%)	248 (32.3%)	29 (32.6%)	219 (32.3%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	116.4 (44.9)	106.2 (17.7)	117.6 (46.9)
Fasting PG (mg/dL), mean (sd)	110.5 (28.6)	107.7 (19.1)	110.9 (29.8)
HbA1c(%), mean (sd)	5.8 (0.9)	5.8 (0.6)	5.9 (0.9)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	276 (35.9%)	32 (36.0%)	244 (35.9%)
Impaired glucose tolerance, n (%)	367 (47.8%)	45 (50.6%)	322 (47.4%)
Diabetes, n (%)	125 (16.3%)	12 (13.5%)	113 (16.6%)
Abnormal BP or glucose metabolism	649 (84.5%)	79 (88.8%)	570 (84.0%)
Abnormal BP and glucose metabolism	331 (43.1%)	43 (48.3%)	288 (42.4%)
Renal function			
Estimated GFR (ml/min), mean (sd)	76.6 (14.9)	52.7 (7.1)	79.7 (12.6)
Proteinuria, n (%)	27 (3.5%)	10 (11.2%)	17 (2.5%)
Serum creatinine (mg/dL), mean (sd)	0.8 (0.2)	1.1 (0.2)	0.8 (0.1)

Table 7-B. 40-64 years, Male	Total	CKD(+)	CKD(-)
Number	450	32	418
Age (years), mean (sd)	55.4 (7.1)	60.1 (4.8)	55.0 (7.1)
Metabolic syndrome, n (%)	101 (22.4%)	9 (28.1%)	92 (22.0%)
BMI (kg/m2), mean (sd)	24.0 (2.9)	25.3 (2.9)	23.9 (2.9)
Blood pressure			
SBP (mm Hg), mean (sd)	127.6 (18.2)	131.1 (24.8)	127.3 (17.6)
DBP (mm Hg), mean (sd)	81.2 (12.2)	84.2 (14.4)	81.0 (12.0)
Classification of hypertension			
Normal blood pressure, n (%)	212 (47.1%)	12 (37.5%)	200 (47.9%)
Normal-high blood pressure, n (%)	99 (22.0%)	8 (25.0%)	91 (21.8%)
Hypertension, n (%)	139 (30.9%)	12 (37.5%)	127 (30.4%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	112.5 (40.6)	110.3 (25.4)	112.6 (41.5)
Fasting PG (mg/dL), mean (sd)	111.7 (32.6)	111.3 (26.2)	111.7 (33.1)
HbA1c(%), mean (sd)	5.8 (1.0)	5.8 (0.7)	5.9 (1.0)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	175 (38.9%)	11 (34.4%)	164 (39.2%)
Impaired glucose tolerance, n (%)	207 (46.0%)	17 (53.1%)	190 (45.5%)
Diabetes, n (%)	68 (15.1%)	4 (12.5%)	64 (15.3%)
Abnormal BP or glucose metabolism	365 (81.1%)	29 (90.6%)	336 (80.4%)
Abnormal BP and glucose metabolism	169 (37.6%)	17 (53.1%)	152 (36.4%)
Renal function			
Estimated GFR (ml/min), mean (sd)	79.6 (14.6)	52.7 (6.9)	81.7 (12.9)
Proteinuria, n (%)	14 (3.1%)	4 (12.5%)	10 (2.4%)
Serum creatinine (mg/dL), mean (sd)	0.8 (0.1)	1.1 (0.2)	0.8 (0.1)

Table 7-C. 65-74 years, Male	Total	CKD(+)	CKD(-)
Number	318	57	261
Age (years), mean (sd)	69.3 (2.8)	69.3 (2.8)	69.3 (2.8)
Metabolic syndrome, n (%)	72 (22.6%)	12 (21.1%)	60 (23.0%)
BMI (kg/m2), mean (sd)	23.9 (2.8)	24.4 (3.1)	23.8 (2.7)
Blood pressure			
SBP (mm Hg), mean (sd)	131.5 (17.5)	127.5 (18.4)	132.4 (17.1)
DBP (mm Hg), mean (sd)	78.3 (11.3)	77.1 (13.0)	78.6 (11.0)
Classification of hypertension			
Normal blood pressure, n (%)	131 (41.2%)	26 (45.6%)	105 (40.2%)
Normal-high blood pressure, n (%)	78 (24.5%)	14 (24.6%)	64 (24.5%)
Hypertension, n (%)	109 (34.3%)	17 (29.8%)	92 (35.3%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	122.6 (50.5)	103.2 (9.2)	126.1 (54.0)
Fasting PG (mg/dL), mean (sd)	108.8 (22.2)	105.9 (14.3)	109.5 (23.8)
HbA1c(%), mean (sd)	5.8 (0.8)	5.7 (0.5)	5.9 (0.9)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	101 (31.8%)	21 (36.8%)	80 (30.7%)
Impaired glucose tolerance, n (%)	160 (50.3%)	28 (49.1%)	132 (50.6%)
Diabetes, n (%)	57 (17.9%)	8 (14.0%)	49 (18.8%)
Abnormal BP or glucose metabolism	284 (89.3%)	50 (87.7%)	234 (89.7%)
Abnormal BP and glucose metabolism	162 (50.9%)	26 (45.6%)	136 (52.1%)
Renal function			
Estimated GFR (ml/min), mean (sd)	72.3 (14.2)	52.7 (7.3)	76.5 (11.4)
Proteinuria, n (%)	13 (4.1%)	6 (10.5%)	7 (2.7%)
Serum creatinine (mg/dL), mean (sd)	0.8 (0.2)	1.1 (0.3)	0.8 (0.1)

Table 8

Table 8-A. 40-74 years, Female	Total	CKD(+)	CKD(-)
Number	1102	99	1003
Age (years), mean (sd)	60.3 (8.2)	65.6 (6.0)	59.8 (8.2)
Metabolic syndrome, n (%)	53 (4.8%)	8 (8.1%)	45 (4.5%)
BMI (kg/m2), mean (sd)	23.1 (3.3)	23.9 (3.1)	23.0 (3.3)
Blood pressure			
SBP (mm Hg), mean (sd)	121.1 (16.9)	125.2 (16.2)	120.7 (16.9)
DBP (mm Hg), mean (sd)	73.3 (11.7)	74.2 (11.6)	73.2 (11.7)
Classification of hypertension			
Normal blood pressure, n (%)	721 (65.4%)	59 (59.6%)	662 (66.0%)
Normal-high blood pressure, n (%)	178 (16.2%)	13 (13.1%)	165 (16.5%)
Hypertension, n (%)	203 (18.4%)	27 (27.3%)	176 (17.6%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	103.2 (18.9)	103.1 (17.6)	103.2 (19.1)
Fasting PG (mg/dL), mean (sd)	99.1 (15.4)	98.1 (10.1)	99.2 (15.9)
HbA1c(%), mean (sd)	5.7 (0.5)	5.7 (0.4)	5.7 (0.5)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	493 (44.7%)	39 (39.4%)	454 (45.3%)
Impaired glucose tolerance, n (%)	552 (50.1%)	55 (55.6%)	497 (49.6%)
Diabetes, n (%)	57 (5.2%)	5 (5.1%)	52 (5.2%)
Abnormal BP or glucose metabolism	804 (73.0%)	85 (85.9%)	719 (71.7%)
Abnormal BP and glucose metabolism	304 (27.6%)	35 (35.4%)	269 (26.8%)
Renal function			
Estimated GFR (ml/min), mean (sd)	77.0 (13.8)	54.0 (5.3)	79.3 (12.2)
Proteinuria, n (%)	15 (1.4%)	3 (3.0%)	12 (1.2%)
Serum creatinine (mg/dL), mean (sd)	0.6 (0.1)	0.8 (0.1)	0.6 (0.1)

Table 8-B. 40-64 years, Female	Total	CKD(+)	CKD(-)
Number	722	33	689
Age (years), mean (sd)	55.9 (6.4)	58.8 (4.6)	55.7 (6.4)
Metabolic syndrome, n (%)	31 (4.3%)	2 (6.1%)	29 (4.2%)
BMI (kg/m2), mean (sd)	22.8 (3.3)	23.1 (2.6)	22.8 (3.3)
Blood pressure			
SBP (mm Hg), mean (sd)	118.4 (16.2)	120.4 (17.9)	118.3 (16.1)
DBP (mm Hg), mean (sd)	73.1 (11.5)	72.5 (11.0)	73.2 (11.5)
Classification of hypertension			
Normal blood pressure, n (%)	509 (70.5%)	22 (66.7%)	487 (70.7%)
Normal-high blood pressure, n (%)	107 (14.8%)	4 (12.1%)	103 (15.0%)
Hypertension, n (%)	106 (14.7%)	7 (21.2%)	99 (14.4%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	100.7 (16.6)	97.8 (6.1)	100.8 (17.0)
Fasting PG (mg/dL), mean (sd)	97.3 (13.0)	93.5 (4.8)	97.4 (13.2)
HbA1c(%), mean (sd)	5.6 (0.4)	5.7 (0.4)	5.6 (0.4)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	357 (49.4%)	16 (48.5%)	341 (49.5%)
Impaired glucose tolerance, n (%)	340 (47.1%)	15 (45.5%)	325 (47.2%)
Diabetes, n (%)	25 (3.5%)	2 (6.1%)	23 (3.3%)
Abnormal BP or glucose metabolism	480 (66.5%)	25 (75.8%)	455 (66.0%)
Abnormal BP and glucose metabolism	151 (20.9%)	7 (21.2%)	144 (20.9%)
Renal function			
Estimated GFR (ml/min), mean (sd)	79.6 (12.8)	54.6 (5.7)	80.8 (11.8)
Proteinuria, n (%)	6 (0.8%)	0 (0.0%)	6 (0.9%)
Serum creatinine (mg/dL), mean (sd)	0.6 (0.1)	0.8 (0.1)	0.6 (0.1)

Table 8-C. 65-74 years, Female	Total	CKD(+)	CKD(-)
Number	380	66	314
Age (years), mean (sd)	68.9 (2.7)	69.0 (2.9)	68.9 (2.7)
Metabolic syndrome, n (%)	22 (5.8%)	6 (9.1%)	16 (5.1%)
BMI (kg/m2), mean (sd)	23.6 (3.3)	24.3 (3.3)	23.5 (3.2)
Blood pressure			
SBP (mm Hg), mean (sd)	126.2 (17.0)	127.6 (14.8)	125.9 (17.4)
DBP (mm Hg), mean (sd)	73.7 (12.1)	75.1 (11.9)	73.4 (12.1)
Classification of hypertension			
Normal blood pressure, n (%)	212 (55.8%)	37 (56.1%)	175 (55.7%)
Normal-high blood pressure, n (%)	71 (18.7%)	9 (13.6%)	62 (19.8%)
Hypertension, n (%)	97 (25.5%)	20 (30.3%)	77 (24.5%)
Glucose metabolism			
Non-fasting PG (mg/dL), mean (sd)	107.7 (21.9)	106.9 (22.0)	107.9 (22.0)
Fasting PG (mg/dL), mean (sd)	102.6 (18.9)	99.9 (11.1)	103.3 (20.3)
HbA1c(%), mean (sd)	5.8 (0.7)	5.7 (0.4)	5.8 (0.7)
Classification of hyperglycemia			
Normal glucose tolerance, n (%)	136 (35.8%)	23 (34.9%)	113 (36.0%)
Impaired glucose tolerance, n (%)	212 (55.8%)	40 (60.6%)	172 (54.8%)
Diabetes, n (%)	32 (8.4%)	3 (4.6%)	29 (9.2%)
Abnormal BP or glucose metabolism	324 (85.3%)	60 (90.9%)	264 (84.1%)
Abnormal BP and glucose metabolism	153 (40.3%)	28 (42.4%)	125 (39.8%)
Renal function			
Estimated GFR (ml/min), mean (sd)	72.1 (14.2)	53.6 (5.1)	76.0 (12.3)
Proteinuria, n (%)	9 (2.4%)	3 (4.6%)	6 (1.9%)
Serum creatinine (mg/dL), mean (sd)	0.6 (0.1)	0.8 (0.1)	0.6 (0.1)

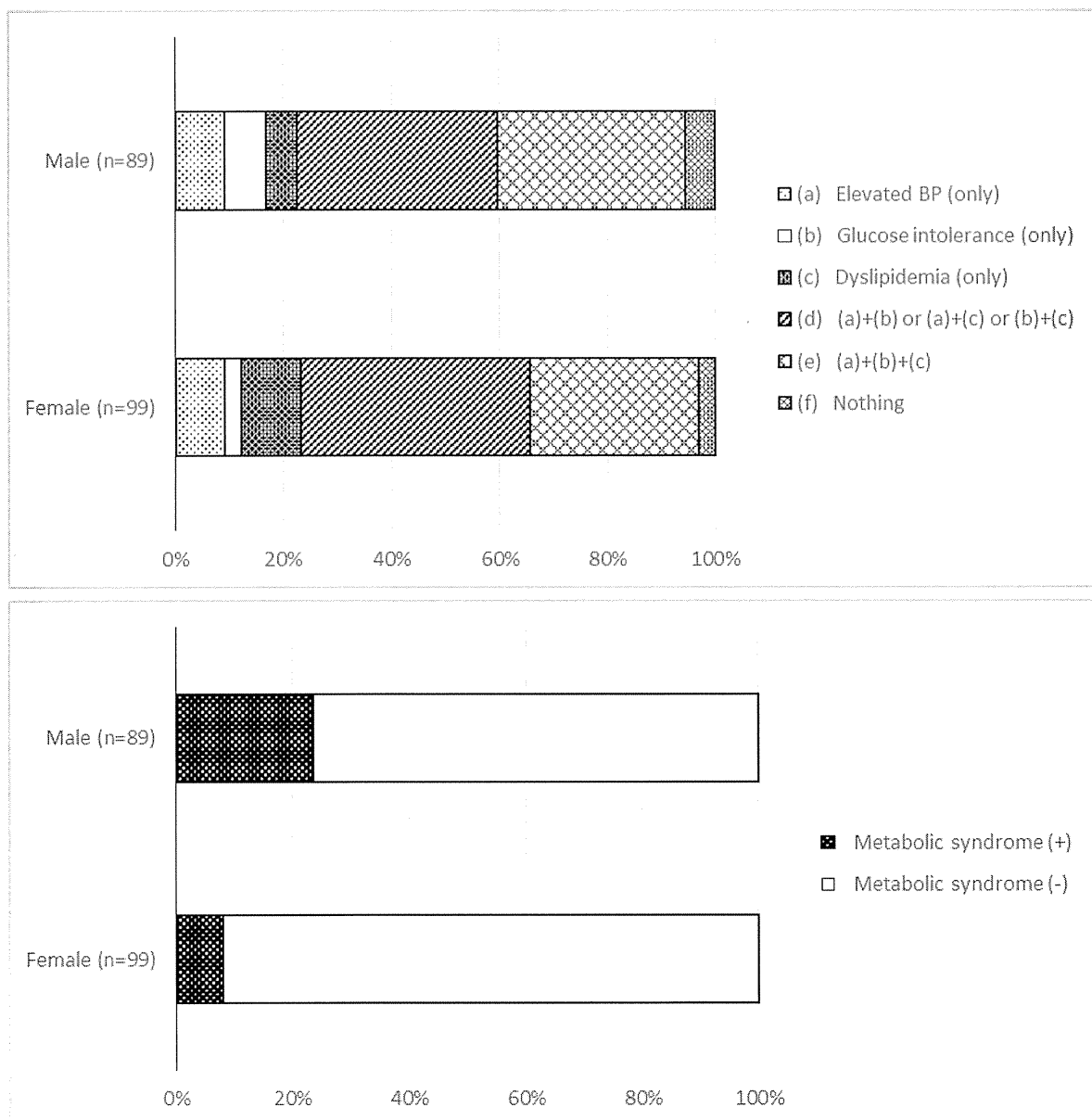


Figure 3

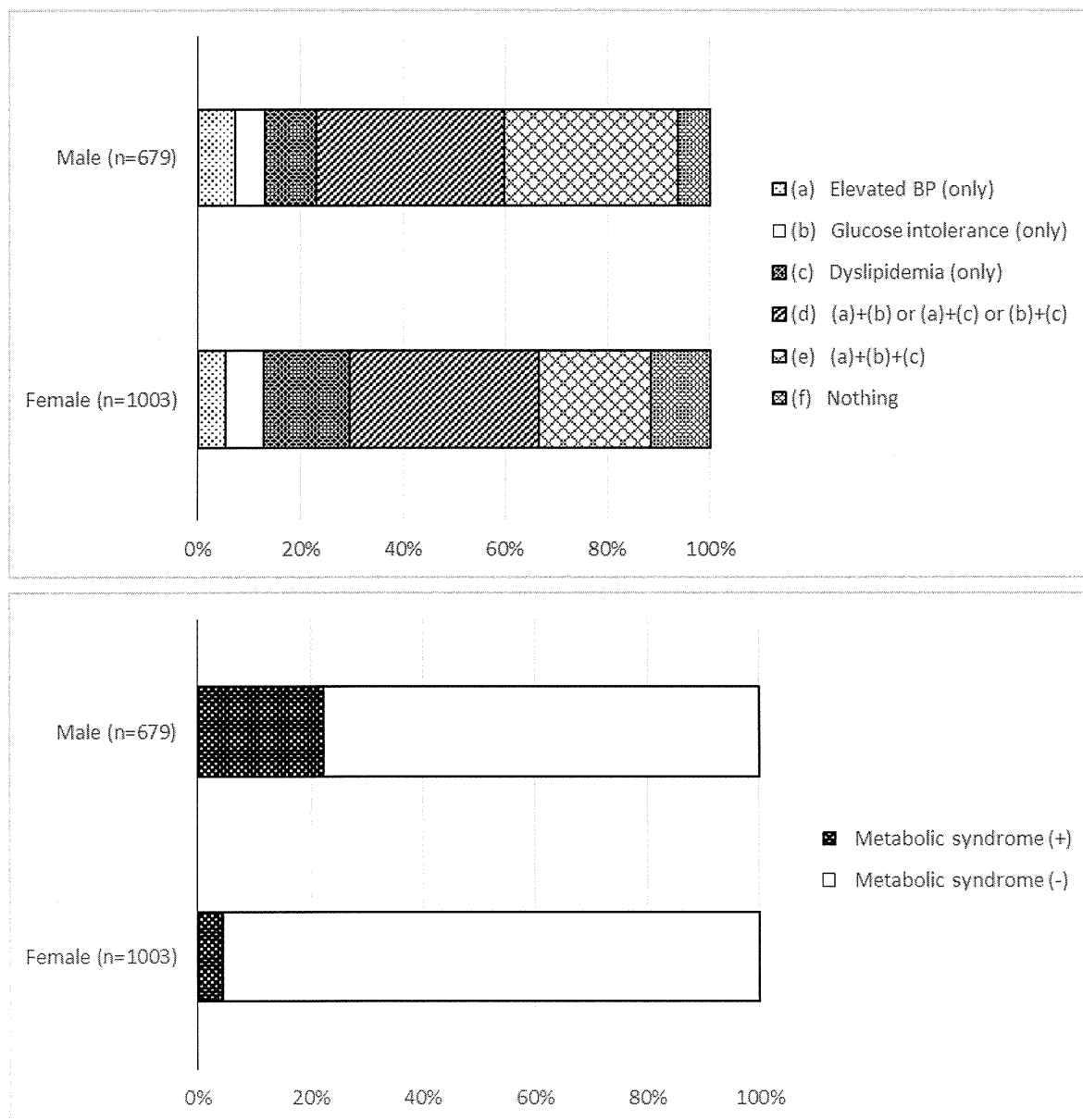


Figure 4

Table 9-A. Liver Function, 40-74 years, Male

	Total	Never drinker	Past drinker	Current drinker
Number	768	169	94	505
Age (years), mean (sd)	61.1 (8.9)	60.7 (8.7)	62.8 (8.9)	61.0 (9.0)
Metabolic syndrome, n (%)	173 (22.5%)	38 (22.5%)	26 (27.7%)	109 (21.6%)
BMI (kg/m ²), mean (sd)	23.9 (2.9)	60.7 (8.7)	23.8 (3.4)	23.9 (2.7)
Obesity (BMI $\geq$ 25), n (%)	256 (33.3%)	59 (34.9%)	33 (35.1%)	164 (32.5%)
Liver function				
GOT (IU/L), mean (sd)	27.5 (18.2)	25.7 (8.6)	28.5 (16.6)	27.9 (20.7)
High (GOT>30), n (%)	163 (21.2%)	29 (17.2%)	23 (24.5%)	111 (22.0%)
GPT (IU/L), median (range)	22.5 (8.0-618.0)	27.0 (15.1-23.0)	28.5 (19.8-22.5)	27.0 (29.8-22.0)
High (GPT>30), n (%)	202 (26.3%)	42 (24.9%)	28 (29.8%)	132 (26.1%)
High GOT or high GPT, n (%)	245 (31.9%)	47 (27.8%)	33 (35.1%)	165 (32.7%)
High GOT and high GPT, n (%)	120 (15.6%)	24 (14.2%)	18 (19.2%)	78 (15.5%)
γ -GTP (IU/L), median (range)	34.0 (10.0-567.0)	37.9 (42.3-26.0)	37.3 (26.4-28.5)	58.4 (58.6-40.0)
High (γ -GTP>50), n (%)	240 (31.3%)	23 (13.6%)	19 (20.2%)	198 (39.2%)
Amount of ethanol (g/day), median (range)	11.5 (0.0-124.2)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	23.0 (0.0-124.2)

Table 9-A. Liver Function, 40-74 years, Male, current drinker

	Total	High Ethanol	Low Ethanol
Number	505	240	265
Amount of ethanol (g/day), median (range)	62.0 (40.0-74.0)	62.0 (40.0-74.0)	63.0 (40.0-74.0)
Age (years), mean (sd)	23.9 (2.7)	23.8 (2.6)	24.1 (2.8)
Metabolic syndrome, n (%)	109 (21.6%)	51 (21.3%)	58 (21.9%)
Liver function			
GOT (IU/L), mean (sd)	27.0 (29.8)	25.7 (14.1)	28.3 (38.9)
High (GOT>30), n (%)	111 (22.0%)	59 (24.6%)	52 (19.6%)
GPT (IU/L), median (range)	40.0 (12.0-567.0)	71.6 (67.8-53.5)	46.5 (45.7-33.0)
High (GPT>30), n (%)	132 (26.1%)	60 (25.0%)	72 (27.2%)
High GOT or high GPT, n (%)	165 (32.7%)	82 (34.2%)	83 (31.3%)
High GOT and high GPT, n (%)	78 (15.4%)	37 (15.4%)	41 (15.5%)
γ -GTP (IU/L), median (range)	40.0 (12.0-567.0)	71.6 (67.8-53.5)	46.5 (45.7-33.0)
High (γ -GTP>50), n (%)	198 (39.2%)	122 (50.8%)	76 (28.7%)

Table 9-B. Liver Function, 40-64 years, Male

	Total	Never drinker	Past drinker	Current drinker
Number	450	109	43	298
Age (years), mean (sd)	55.4 (7.1)	56.1 (7.3)	55.0 (7.2)	55.2 (7.0)
Metabolic syndrome, n (%)	101 (22.4%)	24 (22.0%)	14 (32.6%)	63 (21.1%)
BMI (kg/m ²), mean (sd)	24.0 (2.9)	56.1 (7.3)	24.5 (3.7)	23.9 (2.7)
Obesity (BMI≥25), n (%)	151 (33.6%)	36 (33.0%)	20 (46.5%)	95 (31.9%)
Liver function				
GOT (IU/L), mean (sd)	27.4 (21.2)	24.4 (7.9)	28.9 (15.7)	28.4 (24.9)
High (GOT>30), n (%)	94 (20.9%)	14 (12.8%)	14 (32.6%)	66 (22.2%)
GPT (IU/L), median (range)	24.0 (8.0-618.0)	27.4 (15.7-23.0)	31.6 (20.6-27.0)	29.4 (37.2-23.5)
High (GPT>30), n (%)	141 (31.3%)	30 (27.5%)	17 (39.5%)	94 (31.5%)
High GOT or high GPT, n (%)	159 (35.3%)	31 (28.4%)	21 (48.8%)	107 (35.9%)
High GOT and high GPT, n (%)	76 (16.9%)	13 (11.9%)	10 (23.3%)	53 (17.8%)
γ-GTP (IU/L), median (range)	37.0 (12.0-567.0)	35.6 (28.1-26.0)	39.9 (27.0-35.0)	64.3 (65.9-44.0)
High (γ-GTP>50), n (%)	156 (34.7%)	17 (15.6%)	11 (25.6%)	128 (43.0%)
Amount of ethanol (g/day), median (range)	13.1 (0.0-124.2)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	23.0 (0.0-124.2)

Table 9-B. Liver Function, 40-64 years, Male, current drinker

	Total	High Ethanol	Low Ethanol
Number	298	148	150
Amount of ethanol (g/day), median (range)	57.0 (40.0-64.0)	57.0 (40.0-64.0)	57.0 (40.0-64.0)
Age (years), mean (sd)	23.9 (2.7)	23.6 (2.7)	24.2 (2.8)
Metabolic syndrome, n (%)	63 (21.1%)	30 (20.3%)	33 (22.0%)
Liver function			
GOT (IU/L), mean (sd)	29.4 (37.2)	27.1 (15.8)	31.7 (50.0)
High (GOT>30), n (%)	66 (22.1%)	36 (24.3%)	30 (20.0%)
GPT (IU/L), median (range)	44.0 (12.0-567.0)	77.9 (78.3-56.5)	50.8 (47.3-36.0)
High (GPT>30), n (%)	94 (31.5%)	45 (30.4%)	49 (32.7%)
High GOT or high GPT, n (%)	107 (35.9%)	54 (36.5%)	53 (35.3%)
High GOT and high GPT, n (%)	53 (17.8%)	27 (18.2%)	26 (17.3%)
γ-GTP (IU/L), median (range)	44.0 (12.0-567.0)	77.9 (78.3-56.5)	50.8 (47.3-36.0)
High (γ-GTP>50), n (%)	128 (43.0%)	78 (52.7%)	50 (33.3%)

Table 9-C. Liver Function, 65-74 years, Male

	Total	Never drinker	Past drinker	Current drinker
Number	318	60	51	207
Age (years), mean (sd)	69.3 (2.8)	69.1 (2.8)	69.4 (2.7)	69.3 (2.8)
Metabolic syndrome, n (%)	72 (22.6%)	14 (23.3%)	12 (23.5%)	46 (22.2%)
BMI (kg/m ²), mean (sd)	23.9 (2.8)	69.1 (2.8)	23.1 (3.0)	24.0 (2.7)
Obesity (BMI $\geq$ 25), n (%)	105 (33.0%)	23 (38.3%)	13 (25.5%)	69 (33.3%)
Liver function				
GOT (IU/L), mean (sd)	27.5 (12.7)	28.2 (9.3)	28.2 (17.4)	27.2 (12.3)
High (GOT>30), n (%)	69 (21.7%)	15 (25.0%)	9 (17.7%)	45 (21.7%)
GPT (IU/L), median (range)	21.0 (8.0-115.0)	26.4 (14.0-23.5)	25.9 (18.8-20.0)	23.6 (12.7-21.0)
High (GPT>30), n (%)	61 (19.2%)	12 (20.0%)	11 (21.6%)	38 (18.4%)
High GOT or high GPT, n (%)	86 (27.0%)	16 (26.7%)	12 (23.5%)	58 (28.0%)
High GOT and high GPT, n (%)	44 (13.8%)	11 (18.3%)	8 (15.7%)	25 (12.1%)
γ -GTP (IU/L), median (range)	31.0 (10.0-413.0)	42.1 (60.2-25.5)	35.1 (25.9-27.0)	50.0 (45.0-36.0)
High (γ -GTP>50), n (%)	84 (26.4%)	6 (10.0%)	8 (15.7%)	70 (33.8%)
Amount of ethanol (g/day), median (range)	11.5 (0.0-124.2)	0.0 (0.0-0.0)	0.0 (0.0-0.0)	23.0 (1.0-124.2)

Table 9-C. Liver Function, 65-74 years, Male, current drinker

	Total	High Ethanol	Low Ethanol
Number	207	92	115
Amount of ethanol (g/day), median (range)	69.0 (65.0-74.0)	69.0 (65.0-74.0)	69.0 (65.0-74.0)
Age (years), mean (sd)	24.0 (2.7)	24.1 (2.5)	23.9 (2.9)
Metabolic syndrome, n (%)	46 (22.2%)	21 (22.8%)	25 (21.7%)
Liver function			
GOT (IU/L), mean (sd)	23.6 (12.7)	23.3 (10.6)	23.8 (14.3)
High (GOT>30), n (%)	45 (21.7%)	23 (25.0%)	22 (19.1%)
GPT (IU/L), median (range)	36.0 (12.0-413.0)	61.5 (44.9-48.0)	40.8 (43.1-29.0)
High (GPT>30), n (%)	38 (18.4%)	15 (16.3%)	23 (20.0%)
High GOT or high GPT, n (%)	58 (28.0%)	28 (30.4%)	30 (26.1%)
High GOT and high GPT, n (%)	25 (12.1%)	10 (10.9%)	15 (13.0%)
γ -GTP (IU/L), median (range)	36.0 (12.0-413.0)	61.5 (44.9-48.0)	40.8 (43.1-29.0)
High (γ -GTP>50), n (%)	70 (33.8%)	44 (47.8%)	26 (22.6%)