SUPPLEMENTARY DATA

**Supplementary Table S1.** Comparisons of baseline sociodemographic factors, lifestyles, diabetes-related variables, drug-related variables, comorbidity and Blood biochemical index between patients included and excluded (n=32,307)

| Variables | No (%) | | Standardized Mean Difference |
|---|---|---|---|
| | Excluded patients (N=15,601) | Included patients (N=16,706) | |
| *Sociodemographic factors* | | | |
| Gender | | | |
| Female | 8545 (54.80) | 9213 (55.15) | -0.01 |
| Male | 7047 (45.20) | 7493 (44.85) | 0.01 |
| Age (years) | 69.43 ± 6.23 | 69.17 ± 5.99 | 0.04 |
| *Lifestyle behaviors* | | | |
| Smoking | 1857 (11.92) | 1884 (11.28) | 0.02 |
| Alcohol drinking | 930 (5.97) | 982 (5.88) | 0.00 |
| Insured amount (NT$/month) | | | |
| <17,280 | 5360 (34.37) | 5397 (32.31) | 0.04 |
| 17,280~21,900 | 6101 (39.12) | 6937 (41.52) | -0.05 |
| >21,900 | 4133 (26.50) | 4372 (26.17) | 0.01 |
| Insured unit | | | |
| Government, school employees, private enterprise employees | 4597 (29.95) | 4792 (28.68) | 0.03 |
| Member of occupational, farmers, fishermen | 6189 (40.32) | 7075 (42.35) | -0.04 |
| Low-income households and Veterans | 4564 (29.73) | 4839 (28.97) | 0.02 |
| *Diabetes-related variables* | | | |
| Duration of diabetes (years) | 8.00 ± 9.53 | 8.04 ± 7.29 | 0.00 |
| Type of hypoglycemic drug use | | | |
| No medication | 810 (5.19) | 213 (1.27) | 0.22 |
| One oral hypoglycemic drug | 3102 (19.88) | 2994 (17.92) | 0.05 |
| Two oral hypoglycemic drugs | 6317 (40.49) | 7063 (42.28) | -0.04 |
| Three oral hypoglycemic drugs | 2324 (14.90) | 2838 (16.99) | -0.06 |
| >3 oral hypoglycemic drugs | 666 (4.27) | 779 (4.66) | -0.02 |
| Insulin | 486 (3.12) | 522 (3.12) | 0.00 |
| Insulin+ oral hypoglycemic drug | 1896 (12.15) | 2297 (13.75) | -0.05 |
| *Drug-related variables* | | | |
| Hypertension drug treatment | 6512 (41.74) | 7590 (45.43) | -0.07 |
| *Comorbidity* | | | |
| Obesity (BMI≥27) | 4737 (31.85) | 5680 (34.00) | -0.05 |
| CAD | 1794 (11.50) | 1900 (11.37) | 0.00 |
| CHF | 596 (3.82) | 591 (3.54) | 0.01 |
| Stroke | 1318 (8.45) | 1125 (6.73) | 0.07 |
| Cancer | 429 (2.75) | 383 (2.29) | 0.03 |
| Hyperlipidemia | 3408 (21.84) | 3883 (23.24) | -0.03 |
| Hypertension | 8115 (52.02) | 9102 (54.48) | -0.05 |
| Atrial fibrillation | 130 (0.83) | 130 (0.78) | 0.01 |
| Chronic hepatitis | 1252 (8.03) | 1309 (7.84) | 0.01 |
| COPD | 1012 (6.49) | 1001 (5.99) | 0.02 |

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| | | | |
|---|---|---|---|
| Hypoglycemia | 96 (0.62) | 92 (0.55) | 0.01 |
| *Blood biochemical measurement* | | | |
| Mean fasting plasma glucose over the first-year measurements (mg/dl) | 165.92 ± 51.44 | 163.38 ± 47.24 | 0.05 |
| Mean HbA1c over the first-year measurements at the first year (%) [mmol/mol] | 7.92 ± 1.57 [63.11 ± 17.19] | 7.84 ± 1.49 [62.17 ± 16.30] | 0.06 |

CAD: coronary artery disease; CHF: congestive heart failure; COPD: chronic obstructive pulmonary disease.

a: A value of 0.1 or less indicates a negligible difference in means or proportions.

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SUPPLEMENTARY DATA

**Supplementary Table S2.** HRs for AD according to tertiles of FPG-CV or HbA1c-CV in diabetic patients enrolled in the National Diabetes Care Management Program, Taiwan (n = 32,307)

| Variables | AD (n = 1,705) | | | |
|---|---|---|---|---|
| | HR (95%CI) | | | |
| | Model I | Model II | Model III | Model IV |
| FPG–CV (%) | | | | |
| ≤17.4 | 1.00 | 1.00 | 1.00 | 1.00 |
| 17.4–34.6 | 1.09 (0.96, 1.24) | 1.02 (0.90, 1.17) | 1.02 (0.90, 1.16) | 1.02 (0.89, 1.16) |
| >34.6 | 1.55 (1.38, 1.74)*** | 1.35 (1.20, 1.52)*** | 1.32 (1.17, 1.49)*** | 1.26 (1.11, 1.43)*** |
| FPG (1 SD change) | | 1.11 (1.04, 1.18)*** | 1.10 (1.04, 1.17)** | 1.10 (1.04, 1.17)** |
| HbA1c (1 SD change) | | 0.97 (0.91, 1.04) | 0.98 (0.92, 1.05) | 0.97 (0.91, 1.04) |
| HbA1c–CV (%) | | | | |
| ≤8.3 | 1.00 | 1.00 | 1.00 | 1.00 |
| 8.3~16.3 | 0.99 (0.88, 1.13) | 0.96 (0.85, 1.09) | 0.95 (0.83, 1.08) | 0.94 (0.82, 1.07) |
| >16.3 | 1.36 (1.22, 1.53)*** | 1.29 (1.15, 1.45)*** | 1.25 (1.11, 1.41)*** | 1.18 (1.05, 1.33)** |
| FPG (1 SD change) | | 1.13 (1.06, 1.20)*** | 1.12 (1.05, 1.19)*** | |
| HbA1c (1 SD change) | | 0.96 (0.90, 1.03) | 0.97 (0.91, 1.04) | |

*p < 0.05; **p < 0.01; ***p < 0.001; IR: Incidence density rate = Number of incidence cases/Person-years × 1000. Model I adjusted for age and gender.

Model II adjusted for age, gender, FPG, HbA1c, insured amount, insured unit, smoking, alcohol consumption, duration of diabetes, type of hypoglycemic drug, hypertension drug treatment and obesity.

Model III adjusted for CAD, CHF, stroke, cancer, hyperlipidemia, hypertension, atrial fibrillation, chronic hepatitis, COPD and hypoglycemia along with all other confounders in model II.

Model IV adjusted for PFG-CV and HbA1c-CV along with all other confounders in model III.

FPG and HbA1c were measured by mean values over the first-year measurements.

AD: Alzheimer's disease; HR: hazard ratio; CI: confidence interval; FPG-CV: coefficient of variation of fasting plasma glucose; HbA1c-CV: coefficient of variation of HbA1c; CAD: coronary artery disease; CHF: congestive heart failure; COPD: chronic obstructive pulmonary disease.

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