Table S1Details of Hcy levels in hypertensive patients.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | N (%) | Hcy(μmol/L) | *t* | *P* |
| Sex |  |  |  |  |
| Male | 88 (38.6) | 18.36±9.09 | 3.753 | <0.01 |
| Female | 140 (61.4) | 14.31±5.62 |  |  |
| Age |  |  |  |  |
| ≥65 | 115 (50.4) | 17.23±8.40 | 2.839 | 0.005 |
| <65 | 113 (49.6) | 14.49±5.97 |  |  |
| BMI |  |  |  |  |
| ≥24 | 136 (59.6) | 16.35±7.76 | 1.198 | 0.232 |
| <24 | 92 (40.4) | 15.16±6.84 |  |  |
| HTN duration |  |  |  |  |
| ≥5 | 108 (47.4) | 16.01±7.16 | 0.264 | 0.792 |
| <5 | 120 (52.6) | 15.75±7.66 |  |  |
| Diabetes |  |  |  |  |
| Yes | 82 (36.0) | 15.43±6.55 | -0.668 | 0.505 |
| No | 146 (64.0) | 16.12±7.86 |  |  |
| Dyslipidemia |  |  |  |  |
| Yes | 20 (8.8) | 15.84±6.13 | 0.020 | 0.984 |
| No | 208 (91.2) | 15.87±7.54 |  |  |
| Smoking |  |  |  |  |
| Yes | 43 (18.9) | 16.80±5.87 | 0.910 | 0.364 |
| No | 185 (81.1) | 15.65±7.72 |  |  |
| Alcohol drinking |  |  |  |  |
| Yes | 53 (23.2) | 17.67±9.43 | 2.033 | 0.043 |
| No | 175 (76.8) | 15.32±6.62 |  |  |
| Tea drinking |  |  |  |  |
| Yes | 104 (45.6) | 16.51±7.51 | 1.200 | 0.232 |
| No | 124 (54.4) | 15.33±7.32 |  |  |
| Fruit |  |  |  |  |
| ≥4 times /week | 47 (20.6) | 15.51±8.01 | -0.371 | 0.711 |
| <4 times /week | 181 (20.6) | 15.96±7.27 |  |  |
| Meat |  |  |  |  |
| ≥4 times /week | 110 (48.2) | 15.67±6.93 | -0.397 | 0.691 |
| <4 times /week | 118 (51.8) | 16.06±7.86 |  |  |
| Garlic |  |  |  |  |
| ≥4 times /week | 29 (12.7) | 16.43±7.20 | 0.437 | 0.662 |
| <4 times /week | 199 (87.3) | 15.79±7.46 |  |  |

Table S2Hardy-Weinberg equilibrium test results for four genotypes[n (%)].

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Observed frequency | Expected frequency | *χ2* | *P* |
| MTHFR C667T |  |  |  |  |
| CC | 67(29.4) | 70.2(30.8) | 0.736 | 0.692 |
| CT | 119(52.2) | 112.6(49.4) |  |  |
| TT | 42(18.4) | 45.2(19.8) |  |  |
| MTHFR A1298C |  |  |  |  |
| AA | 160(70.2) | 161.0(70.6) | 0.139 | 0.933 |
| AC | 63(27.6) | 61.3(26.9) |  |  |
| CC | 5(2.2) | 5.7(2.5) |  |  |
| MTR A2756G |  |  |  |  |
| AA | 183(80.3) | 182.6(80.1) | 0.120 | 0.942 |
| AG | 42(18.4) | 42.9(18.8) |  |  |
| GG | 3(1.3) | 2.5(1.1) |  |  |
| MTRR A66G |  |  |  |  |
| AA | 120(52.6) | 116.5(51.1) | 1.294 | 0.524 |
| AG | 86(37.7) | 93.0(40.8) |  |  |
| GG | 22(9.6) | 18.5(8.1) |  |  |

Table S3Associations of MTHFR A1298C and MTR A2756G gene polymorphisms with serum lipids and BP.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | MTHFR A1298C | | | | MTR A2756G | | | |
|  | AA | AC+CC | *t/χ2* | *P*combined | AA | AG+GG | *t/χ2* | *P*combined |
| N(%) | 160(70.2) | 68(29.8) |  |  | 183(80.3) | 45(19.7) |  |  |
| Hcy(μmol/L) | 16.17±8.11 | 15.16±5.42 | 0.947 | 0.345 | 16.17±7.62 | 14.87±6.45 | 1.007 | 0.315 |
| BMI(kg/m2) | 24.60±2.92 | 24.83±2.87 | -0.305 | 0.760 | 24.80±2.80 | 23.94±3.26 | 1.775 | 0.077 |
| TAG(mmol/L) | 1.97±1.49 | 1.99±1.59 | -0.128 | 0.898 | 1.97±1.46 | 1.98±1.73 | -0.034 | 0.973 |
| TC(mmol/L) | 3.39±0.92 | 3.42±1.00 | -0.280 | 0.787 | 3.41±0.96 | 3.44±0.88 | 0.420 | 0.675 |
| SBP(mmHg) | 136.63±18.63 | 135.60±18.61 | 0.379 | 0.705 | 136.10±18.16 | 137.22±20.41 | -0.363 | 0.717 |
| DBP(mmHg) | 82.68±10.82 | 83.76±10.76 | 0.687 | 0.486 | 83.23±11.02 | 82.07±9.82 | 0.647 | 0.518 |
| Hcy≥15μmol/L [n(%)] | 69(43.1) | 29(42.6) | 0.004 | 0.947 | 81(44.3) | 17 (37.8) | 0.620 | 0.431 |
| BMI≥24kg/m2 [n(%)] | 96(60.0) | 40(58.8) | 0.027 | 0.868 | 113(61.7) | 23(51.1) | 1.698 | 0.193 |
| TAG≥1.7mmol/L [n(%)] | 68(42.5) | 26(38.2) | 0.358 | 0.550 | 81(44.3) | 13(28.9) | 3.523 | 0.061 |
| TC≥5.2mmol/L [n(%)] | 8(5.0) | 3(4.4) | 0.036 | 0.850 | 9(4.9) | 2(4.4) | 0.018 | 0.894 |
| SBP≥140mmHg [n(%)] | 57(35.6) | 27(39.7) | 0.342 | 0.559 | 65(35.5) | 49(42.2) | 0.697 | 0.404 |
| DBP≥90 mmHg [n(%)] | 48(30.0) | 19(27.9) | 0.097 | 0.755 | 56(30.6) | 44(24.4) | 0.660 | 0.417 |

Table S4Associations of serum Hcylevels with serum lipids and BP.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Crude | | | Adjusted | | |
|  | *β* (95 %*CI*) | *t* | *P* | *β* (95 %*CI*) | *t* | *P* |
| TAG | 0.078(-0.011,0.043) | 1.173 | 0.242 | 0.094(-0.010,0.048) | 1.313 | 0.191 |
| TC | 0.119(-0.001,0.032) | 1.804 | 0.073 | 0.105(-0.002,0.031) | 1.457 | 0.146 |
| SBP | 0.033(-0.245,0.415) | 0.502 | 0.616 | -0.042(-0.457,0.247) | -0.588 | 0.557 |
| DBP | -0.022(-0.223,0.158) | -0.333 | 0.740 | -0.043(-0.267,0.142) | -0.603 | 0.547 |

Adjusted for sex, age, BMI, smoking and alcohol drinking.

Table S5Associations of low serum Hcylevel with serum lipids and BP.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Crude | | | | | | Adjusted | | | | |
|  | *β(95 %CI)* | | *t* | | *P* | | *β(*95 %*CI)* | | *t* | | *P* | |
| lnTAG | | 0.125(-0.008,0.441) | | 1.901 | | 0.059 | | 0.150(0.013,0.505) | | 2.076 | | 0.039 |
| lnTC | | 0.134(0.003,0.195) | | 2.026 | | 0.044 | | 0.113(-0.023,0.189) | | 1.540 | | 0.125 |
| lnSBP | | 0.056(-0.027,0.066) | | 0.842 | | 0.401 | | -0.023(-0.059,0.042) | | -0.321 | | 0.748 |
| lnDBP | | -0.032(-0.057,0.034) | | -0.483 | | 0.630 | | -0.055(-0.068,0.030) | | -0.759 | | 0.449 |

Adjusted for sex, age, BMI, smoking and alcohol drinking. ln, logarthmic transformation.

Table S6 Interactions of genotypes and high serum homocysteine (Hcy) levels with dyslipidemia

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Genotype | Hcy status | N | Hyper-TAG | *OR (95 %CI)* | *Pcombined* | Hyper-TC | *OR (95 %CI)* | *Pcombined* |
| MTHFR C677T |  |  |  |  |  |  |  |  |
| CC+CT | Low | 107 | 35(32.7) | Ref. |  | 5(4.7) | Ref. |  |
| CC+CT | High | 79 | 40(50.6) | 2.531(1.319, 4.856) | 0.005 | 3(3.8) | 0.787(0.170, 3.642) | 0.759 |
| TT | Low | 23 | 10(43.5) | 1.376(0.535, 3.535) | 0.508 | 3(13.0) | 2.956(0.620, 14.097) | 0.174 |
| TT | High | 19 | 9(47.4) | 2.176(0.768, 6.164) | 0.143 | 0 | - | - |
| MTHFR A1298C |  |  |  |  |  |  |  |  |
| AA+AC | Low | 127 | 44(34.6) | Ref. |  | 8(6.3) | Ref. |  |
| AA+AC | High | 96 | 48(50.0) | 2.318(1.275, 4.214) | 0.006 | 3(3.1) | 0.493(0.118, 2.063) | 0.332 |
| CC | Low | 3 | 1(33.3) | 1.054(0.089, 12.516) | 0.967 | 0 | - | - |
| CC | High | 2 | 1(50.0) | 2.633(0.151, 46.825) | 0.503 | 0 | - | - |
| MTR A2756G |  |  |  |  |  |  |  |  |
| AA+AG | Low | 127 | 44(34.6) | Ref. |  | 7(5.5) | Ref. |  |
| AA+AG | High | 98 | 49(50.0) | 2.307(1.276, 4.172) | 0.006 | 3(3.1) | 0.529(0.123, 2.270) | 0.392 |
| GG | Low | 3 | 1(33.3) | 0.688(0.060, 7.926) | 0.764 | 1(33.3) | 8.546(0.614, 118.990) | 0.110 |
| GG | High | 0 | 0 | - | - | 0 | - | - |
| MTRR A66G |  |  |  |  |  |  |  |  |
| AA+AG | Low | 121 | 39(32.2) | Ref. |  | 8(6.6) | Ref. |  |
| AA+AG | High | 85 | 42(49.4) | 2.645(1.392, 5.026) | 0.003 | 3(3.5) | 0.520(0.121, 2.237) | 0.380 |
| GG | Low | 9 | 6(66.7) | 5.638(1.203, 26.420) | 0.028 | 0 | - | - |
| GG | High | 13 | 7(53.8) | 3.436(1.026, 11.503) | 0.045 | 0 | - | - |

High Hcy: serum hcy level≥15 μmol/L; Low Hcy: serum hcy level < 15 μmol/L.

Hyper-TAG: TAG ≥ 1.7mmol/L; Hyper-TC: TC ≥ 5.2mmol/L.

Adjusted for sex, age, BMI, smoking and alcohol drinking.

Table S7 Interactions of genotypes and high serum homocysteine (Hcy) levels with uncontrolled BP

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Genotypes | Hcy status | N | Uncontrolled SBP | *OR（95 %CI）* | *Pcombined* | Uncontrolled DBP | *OR（95 %CI）* | *Pcombined* |
| MTHFR C677T |  |  |  |  |  |  |  |  |
| CC+CT | Low | 107 | 40(37.4) | Ref. |  | 30(28.0) | Ref. |  |
| CC+CT | High | 79 | 28(35.4) | 0.898(0.475, 1.698) | 0.741 | 18(22.8) | 0.724(0.356, 1.471) | 0.372 |
| TT | Low | 23 | 9(39.1) | 1.123(0.436, 2.891) | 0.810 | 12(52.2) | 2.673(1.044, 6.844) | 0.040 |
| TT | High | 19 | 7(36.8) | 0.861(0.303, 2.446) | 0.779 | 7(36.8) | 1.292(0.451, 3.703) | 0.634 |
| MTHFR A1298C |  |  |  |  |  |  |  |  |
| AA+AC | Low | 127 | 47(37.0) | Ref. |  | 40(31.5) | Ref. |  |
| AA+AC | High | 96 | 34(35.4) | 0.894(0.498, 1.606) | 0.708 | 24(25.0) | 0.702(0.372, 1.323) | 0.274 |
| CC | Low | 3 | 2(66.7) | 3.957(0.339, 46.246) | 0.273 | 2(66.7) | 5.307(0.451, 62.470) | 0.185 |
| CC | High | 2 | 1(50.0) | 2.044(0.116, 36.127) | 0.626 | 1(50.0) | 2.973(0.168, 52.602) | 0.457 |
| MTR A2756G |  |  |  |  |  |  |  |  |
| AA+AG | Low | 127 | 46(36.2) | Ref. |  | 41(32.3) | Ref. |  |
| AA+AG | High | 98 | 35(35.7) | 0.912(0.510, 1.631) | 0.756 | 25(25.5) | 0.690(0.370, 1.288) | 0.244 |
| GG | Low | 3 | 3(100.0) | - | - | 1(33.3) | 1.052(0.091, 12.177) | 0.968 |
| GG | High | 0 | 0 | - | - | 0 | - | - |
| MTRR A66G |  |  |  |  |  |  |  |  |
| AA+AG | Low | 121 | 46(38.0) | Ref. |  | 37(30.6) | Ref. |  |
| AA+AG | High | 85 | 29(34.1) | 0.800(0.430, 1.491) | 0.483 | 22(25.9) | 0.777(0.398, 1.517) | 0.460 |
| GG | Low | 9 | 3(33.3) | 0.767(0.173, 3.396) | 0.727 | 5(55.6) | 2.658(0.649, 10.877) | 0.174 |
| GG | High | 13 | 6(46.2) | 1.225(0.380, 3.950) | 0.734 | 3(23.1) | 0.680(0.172, 2.694) | 0.583 |

High Hcy: serum hcy level≥15 μmol/L; Low Hcy: serum hcy level < 15 μmol/L.

UncontrolledSBP: SBP ≥ 140mmHg; Uncontrolled DBP: DBP ≥ 90 mmHg.

Adjusted for sex, age, BMI, smoking and alcohol drinking