**Twin Research and Human Genetics**

**Genetic Influence on Left Ventricular Structure and Function: A Korean Twin and Family Study**

Hye-Mi Noh, Sang Cheol Lee, Seung Woo Park, Joohon Sung, Yun-Mi Song

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Supplementary Table S1: Reproducibility of Echocardiographic Measurements for 21 Randomly Selected Subjects | | | | |
|  | Intraclass correlation coefficient  (95% confidence interval) between  two different echocardiography machines (number of subject = 21) | | Intraclass correlation coefficient  (95% confidence interval) between  two different echocardiographers  (number of subject = 21) | |
| LV mass, g | 0.90 | (0.81, 0.94) | 0.64 | (0.28, 0.84) |
| LV internal diameter, mm | 0.92 | (0.85, 0.96) | 0.75 | (0.47, 0.90) |
| Interventricular septum, mm | 0.79 | (0.64, 0.88) | 0.64 | (0.28, 0.84) |
| Left atrial diameter, mm | 0.85 | (0.73, 0.92) | 0.81 | (0.57, 0.92) |
| Aortic root diameter, mm | 0.90 | (0.81, 0.94) | 0.70 | (0.38, 0.87) |
| Ejection fraction, % | 0.75 | (0.58, 0.86) | 0.65 | (0.29, 0.85) |
| E peak, cm/s | 0.83 | (0.71, 0.91) | 0.99 | (0.97, 1.00) |
| A peak, cm/s | 0.79 | (0.63, 0.88) | 0.90 | (0.77, 0.96) |
| Ea peak, cm/s | 0.74 | (0.56, 0.85) | 0.84 | (0.63, 0.93) |
| Aa peak, cm/s | 0.72 | (0.53, 0.84) | 0.90 | (0.77, 0.96) |
| Note: SD = standard deviation, LV = Left ventricle, E peak = early diastolic velocity of mitral inflow, A peak = late diastolic velocity of mitral inflow, Ea peak = early diastolic mitral annular velocity, Aa peak = late diastolic mitral annular velocity. | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Supplementary Table S2: Additive Genetic Correlation (ρG) Between Echocardiographic Measurement and Cardiovascular Risk Factors and the Influence of Additional Adjustment\* for Cardiovascular Risk Factors on the Estimation Of Heritability. | | | | | | | | | | | | | | | | | | |
|  | Height | | | Body mass index | | | Systolic blood pressure | | | Glucose† | | | LDL-cholesterol‡ | | | HDL-cholesterol‡ | | |
|  | Change | |  | Change | |  | Change | |  | Change | |  | Change | |  | Change | |
| ρG (SE) | VAR | h2 | ρG (SE) | VAR | h2 | ρG (SE) | VAR | h2 | ρG (SE) | VAR | h2 | ρG (SE) | VAR | h2 | ρG (SE) | VAR | h2 |
| LV mass | 0.39(0.04)§ | 5.4% | -0.04 | 0.49(0.05)§ | 11.2% | -0.04 | 0.42(0.07)§ | 5.0% | -0.04 | 0.11(0.08) | 0% | 0 | 0.10(0.07) | 0% | 0 | -0.15(0.06)§ | 0.9% | -0.01 |
| LV internal diameter | 0.36(0.04)§ | 5.3% | -0.03 | 0.39(0.06)§ | 8.2% | -0.02 | 0.21(0.08)§ | 1.2% | -0.01 | 0.11(0.08) | 0.1% | 0 | 0.01(0.07) | 0% | 0 | -0.16(0.06)§ | 0.6% | -0.01 |
| Interventricular septum | 0.29(0.06)§ | 1.9% | -0.02 | 0.32(0.08)§ | 3.9% | -0.01 | 0.30(0.09)§ | 3.4% | -0.02 | 0.05(0.10) | 0% | 0 | 0.08(0.08) | 0.5% | 0.01 | -0.10(0.07) | 0.8% | -0.01 |
| Left atrial diameter | 0.15(0.05)§ | 1.3% | 0 | 0.64(0.05)§ | 22.4% | -0.09 | 0.31(0.08)§ | 5.1% | -0.02 | 0.33(0.09)§ | 1.0% | -0.02 | 0.14(0.07) | 1.1% | 0 | -0.19(0.06)§ | 2.2% | -0.01 |
| Aortic root diameter | 0.29(0.04)§ | 2.6% | -0.09 | 0.25(0.06)§ | 1.6% | -0.07 | 0.22(0.08) | 0.7% | -0.05 | 0.11(0.08) | 0.2% | -0.06 | 0.06(0.07) | 0.1% | -0.06 | -0.23(0.06)§ | 0% | -0.06 |
| Ejection fraction | -0.07(0.06) | 0% | 0 | 0.07(0.09) | 0.3% | 0 | 0.33(0.10)§ | 0.5% | -0.01 | 0.003(0.10) | 0% | 0 | 0.10(0.09) | 0% | 0 | 0.11(0.08) | 0% | 0 |
| Left atrial volume index | 0.05(0.05) | 0% | 0 | 0.07(0.07) | 0.2% | 0 | 0.24(0.08)§ | 1.4% | -0.01 | 0.09(0.08) | 0.3% | 0.01 | -0.03(0.07) | 0.1% | 0 | 0.05(0.06) | 0% | 0 |
| E/A ratio | -0.02(0.06) | 0% | 0 | -0.48(0.07)§ | 3.3% | -0.03 | -0.15(0.09) | 2.4% | 0 | -0.26(0.10)§ | 0.8% | -0.01 | -0.13(0.08) | 0.7% | 0 | 0.20(0.07)§ | 0.4% | -0.01 |
| Ea peak | 0.05(0.05) | 0.2% | -0.04 | -0.54(0.06)§ | 6.2% | -0.11 | -0.36(0.07)§ | 4.4% | -0.10 | -0.18(0.09)§ | 1.4% | -0.04 | -0.26(0.07)§ | 2.1% | -0.06 | 0.003(0.30) | 0.3% | -0.04 |
| E/Ea ratio | -0.03(0.05) | 0.2% | 0 | 0.38(0.08)§ | 5.5% | -0.04 | 0.41(0.09)§ | 4.1% | -0.04 | 0.22(0.09)§ | 1.2% | -0.02 | 0.13(0.08) | 0.1% | 0 | -0.07(0.07) | 0.3% | 0 |
| Note: SE= standard error, LV = Left ventricle, E peak = peak early diastolic velocity of mitral inflow, A peak = peak late diastolic velocity of mitral inflow, Ea peak = peak early diastolic mitral annular velocity, Aa peak = peak late diastolic mitral annular velocity, LDL = low density lipoprotein, HDL = high density lipoprotein, VAR = change in variance explained by covariates after the additional adjustment for each specific factor, h2 = heritability change by the additional adjustment for each specific factor, \*adjusted for each selected variable in addition to age, sex, smoking, alcohol, and physical activity, †Fasting glucose and diabetic medication, ‡Lipid profile and lipid lowering medication. §*p* < .05 | | | | | | | | | | | | | | | | | |