|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ***Wald-Chi-squared*** | | | | | |
| **OV** | **BSM** | **BS-LGE** | **FS** | **MN** | **AS** |
| *Demographic Parameters:* | | | | | | |
| **Age** | 0.0003 | 0.5265 | 0.1377 | 0.4120 | 0.7176 | 0.1346 |
| **Diagnosis** | 0.3825 | 3.0848 | 8.7878\* | 4.5225 | 4.0903 | 1.9406 |
| **Diabetes** | 0.0932 | 0.2959 | 0.3479 | 0.0648 | 0.0027 | 2.0208 |
| **Hypertension** | 0.1150 | 0.7991 | 0.0008 | 0.9021 | 1.0587 | 0.1949 |
| **Sex** | 0.2547 | 0.7948 | 0.9171 | 2.1761 | 2.8285 | 0.3168 |
| **CAD** | 0.3970 | 0.0042 | 1.8314 | 0.0021 | 0.2371 | 0.0019 |
| **NYHA** | 3.7746 | 0.6303 | 1.8150 | 1.0168 | 2.0835 | 0.3811 |
| **Hyperlipidemia** | 0.6638 | 1.0283 | 0.7419 | 0.8635 | 0.0017 | 2.9402 |
| **BMI** | 6.6581\*\* | 6.5624\* | 1.7144 | 1.4852 | 0.5261 | 10.9982\*\*\* |
| *Acquisition Parameters:* | | | | | | |
| **TI-Adjustment** | 0.0018 | 1.9633 | 0.0284 | 2.5124 | 0.1657 | 2.9198 |
| **t-contrast** | 0.0867 | 0.6783 | 0.0695 | 1.1776 | 4.1299\* | 0.0067 |
| **Field Strenght** | 0.1168 | 0.0364 | 0.7657 | 5.3591\* | 0.0987 | 0.0154 |
| **rTD** | 0.5681 | 0.0013 | 0.5032 | 4.0896\* | 0.9203 | 0.1042 |
| **t-acq** | 2.9455 | 0.2529 | 0.5656 | 0.2883 | 0.1098 | 1.4213 |
| **Visually Diastolic** | 19.9242\*\*\* | 4.6232\* | 7.0648\*\* | 1.1774 | 0.9937 | 17.8416\*\*\* |
| *Cardiac Function:* | | | | | | |
| **LV-EDV** | 0.0171 | 0.9831 | 8.6660\*\* | 0.4753 | 6.0436\* | 0.3749 |
| **LV-ESV** | 0.0086 | 0.7725 | 6.2131\* | 0.0422 | 5.5418\* | 0.6467 |
| **LV-SV** | 0.7922 | 0.0407 | 1.8868 | 0.1356 | 0.0076 | 0.7775 |
| **LV-EF** | 1.5894 | 1.4687 | 5.0452\* | 0.2526 | 0.4378 | 0.1206 |
| **CO** | 0.1386 | 1.4068 | 11.8804\*\*\* | 0.3064 | 0.0136 | 0.9570 |
| **CI** | 9.5001\*\* | 0.0320 | 7.1228\*\* | 0.9733 | 13.4006\*\*\* | 3.2052 |
| **LV-mass** | 5.3261\* | 4.3470\* | 1.6135 | 0.0382 | 5.4679\* | 2.1478 |
| **LV-EDV-I height** | 5.1732\* | 0.0163 | 0.0277 | 0.1412 | 4.3334\* | 0.4021 |
| **LV-ESV-I height** | 4.3091\* | 0.0720 | 0.0040 | 0.0846 | 0.9103 | 0.2581 |
| **LV-mass-I height** | 13.2963\*\* | 8.7497\*\* | 3.2407 | 0.8348 | 5.4486\* | 15.3287\*\*\* |
| **fibrosis** | 2.4986 | 0.0318 | 0.0078 | 1.8023 | 0.9371 | 0.4673 |
| **fat** | 1.5981 | 3.5632 | 1.3602 | 1.7662 | 1.6017 | 0.2496 |

**Appendix Table 1:** Primary confounder analysis for overall image quality, border sharpness myocardium blood, border sharpness myocardium-LGE, fat separation, myocardial nulling and anatomical structures

AS= anatomical structures, BMI= body mass index, BS-LGE= late gadolinium enhancement-remote/healthy myocardium border sharpness, BSM= blood-myocardium border sharpness, CAD= coronary artery disease, CO= cardiac output, EDV(-I)= end-diastolic volume (-index), *ex*= variable was excluded during primary analysis, CI= cardiac index, EF= ejection fraction, ESV(-I)= end-systolic volume (-index), FS= fat separation, LV= left ventricular, MN= myocardial nulling, NYHA= New York Heart Association, OV= overall image quality, rTD= relative trigger delay, t-acq= duration of 3D image acquisition, t-contrast= time delay between application of contrast agent and image acquisition. \*p≤0.05; \*\*p≤0.01; \*\*\*p≤0.001

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ***Wald-Chi-squared*** | | | | | |
| **OV** | **BSM** | **BS-LGE** | **FS** | **MN** | **AS** |
| *Demographic Parameters:* | | | | | | |
| **Age** | - | - | - | - | - | - |
| **Diagnosis** | - | - | 9.89\* | - | - | - |
| **Diabetes** | - | - | - | - | - | - |
| **Hypertension** | - | - | - | - | - | - |
| **Sex** | - | - | - | - | - | - |
| **CAD** | - | - | - | - | - | - |
| **NYHA** | - | - | - | - | - | - |
| **Hyperlipidemia** | - | - | - | - | - | - |
| **BMI** | 2.19 | 3.89\* | - | - | - | 11.14\*\*\* |
| *Acquisition Parameters:* | | | | | | |
| **TI-adjustment** | - | - | - | - | - | - |
| **t-contrast** | - | - | - | - | 6.01\* | - |
| **Field strenght** | - | - | - | 4.46\* | - | - |
| **rTD** | - | - | - | 2.54 | - | - |
| **t-acq** | - | - | - | - | - | - |
| **Visually diastolic** | 8.46\*\* | 0.28 | 0.04 | - | - | 6.39\* |
| *Cardiac Function:* | | | | | | |
| **LV-EDV** | - | - | 8.54\*\* | - | 7.15\*\* | - |
| **LV-ESV** | - | - | 6.33\* | - | 8.73\*\* | - |
| **LV-SV** | - | - | - | - | - | - |
| **LV-EF** | - | - | 4.36\* | - | - |  |
| **CO** | - | - | 9.82\*\* | - | - | - |
| **CI** | 4.35\* | - | 5.03 | - | 16.00\*\*\* | - |
| **LV-mass** | 3.64 | 7.02\*\* | - | - | 3.01 | - |
| **LV-EDV-I height** | 0.42 | - | - | - | 3.75 | - |
| **LV-ESV-I height** | 1.96 | - | - | - | - | - |
| **LV-mass-I height** | 7.57\*\* | 7.35\*\* | - | - | 0.96 | 1.58 |
| **fibrosis** | - | - | - | - | - | - |
| **fat** | - | - | - | - | - | - |

**Appendix Table 2:** Final confounder analysis analyzing significant confounders from first

Analysis

AS= anatomical structures, BMI= body mass index, BS-LGE= late gadolinium enhancement-remote/healthy myocardium border sharpness, BSM= blood-myocardium border sharpness, CAD= coronary artery disease, CO= cardiac output, EDV(-I)= end-diastolic volume (-index), *ex*= variable was excluded during primary analysis, CI= cardiac index, EF= ejection fraction, ESV(-I)= end-systolic volume (-index), FS= fat separation, LV= left ventricular, MN= myocardial nulling, NYHA= New York Heart Association, OV= overall image quality, rTD= relative trigger delay, t-acq= duration of 3D image acquisition, t-contrast= time delay between application of contrast agent and image acquisition. \*p≤0.05; \*\*p≤0.01; \*\*\*p≤0.001

**Appendix Table 3:** Confounder analysis for contrast ratio before removal

|  |  |  |
| --- | --- | --- |
|  | **f-value** | **p-value** |
| **Age** | 0.19 | 0.6658 |
| **Diagnosis** | 1.02 | 0.3887 |
| **Heartrate** | 0.65 | 0.4220 |
| **Diabetes** | 0.08 | 0.7756 |
| **Hypertension** | 0.25 | 0.6203 |
| **Sex** | 0.27 | 0.6021 |
| **CAD** | 0.27 | 0.6051 |
| **NYHA** | 1.57 | 0.2047 |
| **Hyperlipidemia** | 0.64 | 0.4260 |
| **BMI** | 0.15 | 0.7028 |
| **TI-Adjustment** | 2.47 | 0.1209 |
| **t-contrast** | 2.52 | 0.1174 |
| **Field Strength** | 3.78 | 0.0563 |
| **rTD** | 0.00 | 0.9461 |
| **t-acq.** | 1.60 | 0.2102 |
| **Visually Diastolic** | 1.33 | 0.2531 |
| **LV-EDV** | 0.38 | 0.5379 |
| **LV-ESV** | 2.02 | 0.1605 |
| **LV-SV** | 0.00 | 0.9472 |
| **LV-EF** | 0.23 | 0.6345 |
| **CO** | 0.23 | 0.6345 |
| **CI** | 0.07 | 0.7981 |
| **LV-mass** | 1.29 | 0.2595 |
| **LV-EDV-I** | 2.64 | 0.1091 |
| **LV-ESV-I** | 3.49 | 0.0663 |
| **LV-mass-I** | 0.11 | 0.7449 |
| **Fibrosis** | 0.10 | 0.7496 |
| **Fat** | 0.02 | 0.8763 |

BMI=body mass index, CAD=coronary artery disease, CI= cardiac index, CO=cardiac output, EDV(-I)=end-diastolic volume (-index), EF=ejection fraction, ESV(-I)= end-systolic volume (-index), LV=left ventricular, NYHA=New York Heart Association, rTD=relative trigger delay, t-acq=duration of 3D image acquisition, t-contrast=duration between application of contrast agent and image acquisition, TI=inversion time, SV= stroke volume. \*p≤0.05; \*\*p≤0.01; \*\*\*p≤0.001