**Supplemental Material**

Supplemental Table 1. Characteristics of the patients that responded to the sexual and social questionnaires compared with the overall SPRINT population

|  |  |  |
| --- | --- | --- |
| **Variable** | **Sexual analysis** | **All population** |
| **Men** | **Women** | **Men** | **Women** |
| N.  | 1268 | 613 | 6029 | 3332 |
| Intensive | 634 (48.9%) | 330 (50.4%) | 2994 (49.7%) | 1684 (50.5%) |
| Age, yr | 66.8 ± 9.7 | 67.4 ± 10.0 | 67.6 ± 9.3 | 68.5 ± 9.5 |
| Race |  |  |  |  |
| Black | 360 (27.8%) | 255 (38.9%) | 1531 (25.4%) | 1271 (38.1%) |
| Hispanic | 140 (10.8%) | 100 (15.3%) | 530 (8.8%) | 454 (13.6%) |
| Other | 22 (1.7%) | 10 (1.5%) | 121 (2.0%) | 55 (1.7%) |
| White | 774 (59.7%) | 290 (44.3%) | 3847 (63.8%) | 1552 (46.6%) |
| BMI, Kg/m2 | 29.9 ± 5.4 | 30.2 ± 6.6 | 29.7 ± 5.3 | 30.1 ± 6.6 |
| SBP, mmHg | 139.0 ± 14.8 | 142.2 ± 17.1 | 138.8 ± 14.8 | 141.2 ± 16.8 |
| DBP, mmHg | 78.8 ± 11.8 | 78.9 ± 12.1 | 78.4 ± 11.8 | 77.6 ± 12.2 |
| Smoking  |  |  |  |  |
| Never | 487 (37.6%) | 350 (53.4%) | 2297 (38.1%) | 1825 (54.8%) |
| Former | 611 (47.1%) | 207 (31.6%) | 2918 (48.4%) | 1055 (31.7%) |
| Current  | 195 (15.0%) | 98 (15.0%) | 800 (13.3%) | 440 (13.2%) |
| eGFR, ml/min | 74.1 ± 20.7 | 71.4 ± 22.1 | 72.5 ± 20.1 | 70.3 ± 21.4 |
| eGFR<60 | 319 (24.6%) | 204 (31.1%) | 1588 (26.3%) | 1058 (31.8%) |
| HDL-c, mg/dL | 48.7 ± 12.1 | 59.2 ± 16.1 | 49.3 ± 12.4 | 59.4 ± 15.6 |
| Triglycerides, mg/dL | 136.0 ± 135.3 | 127.9 ± 82.7 | 129.1 ± 100.4 | 120.2 ± 68.6 |
| UACR, mg/gCr | 8.7 (5.1, 20.3) | 10.5 (6.3, 21.6) | 8.9 (5.2, 21.6) | 10.6 (6.5, 21.1) |
| Subclinical CVD | 72 (5.6%) | 30 (4.6%) | 321 (5.3%) | 172 (5.2%) |
| N. anti-HT drugs |  |  |  |  |
| 0 | 125 (9.6%) | 51 (7.8%) | 651 (10.8%) | 231 (6.9%) |
| 1 | 383 (29.6%) | 188 (28.7%) | 1779 (29.5%) | 974 (29.2%) |
| 2 | 459 (35.4%) | 242 (36.9%) | 2097 (34.8%) | 1195 (35.9%) |
| 3+ | 329 (25.4%) | 174 (26.6%) | 1502 (24.9%) | 932 (27.9%) |
| Statin use | 614 (47.4%) | 233 (35.8%) | 2818 (47.1%) | 1236 (37.4%) |

Supplemental Table 2. Use of anti-hypertensive drugs in the populations that responded to the sexual health questionnaires

|  |  |  |  |
| --- | --- | --- | --- |
| **Medications** | **Overall** | **Standard** | **Intensive** |
| **Women**  | **Men**  | **P-value** | **Women**  | **Men**  | **P-value** | **Women**  | **Men**  | **P-value** |
| ACEi/ARBs | 70.60% | 70.80% | 0.84 | 62.70% | 62.60% | 0.86 | 78.20% | 79.50% | 0.083 |
| Thiazides | 57.10% | 52.80% | <0.001 | 45.60% | 41.90% | <0.001 | 68.20% | 64.50% | <0.001 |
| ACEi/ARBs/Thiazides | 42.10% | 39.20% | <0.001 | 29.00% | 26.80% | 0.005 | 54.60% | 52.50% | 0.017 |
| CCB | 46.90% | 48.10% | 0.06 | 39.80% | 39.60% | 0.79 | 53.70% | 57.20% | <0.001 |
| Beta-blockers | 39.50% | 39.80% | 0.61 | 33.30% | 34.30% | 0.25 | 45.40% | 45.70% | 0.74 |
| MRAs | 7.00% | 3.80% | <0.001 | 6.70% | 1.70% | <0.001 | 7.30% | 6.00% | 0.003 |
| Central acting | 5.60% | 13.10% | <0.001 | 2.80% | 8.90% | <0.001 | 8.30% | 17.60% | <0.001 |
| Loop diuretics | 8.30% | 5.60% | <0.001 | 6.10% | 5.40% | 0.084 | 10.50% | 5.60% | <0.001 |
| Total  | 9531 | 18544 |  | 4672 | 9590 |  | 4859 | 8954 |  |

Supplemental Table 3. Quality of erections comparing intensive vs. standard treatment with anti-hypertensive regimens that exclude certain drug classes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Men** | **Coef.** | **LCI** | **UCI** | **P** |
| **Time (months): 0 (randomization) to 48 months** |  |  |  |  |
| **Sexual activity questions** | **Continuous** |  |  |  |
| **Confidence that you could get and keep an erection?** |  |  |  |  |
| No ACEi/ARBs |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.08 | -0.17 | 0 | 0.046 |
| 12 | -0.12 | -0.21 | -0.04 | 0.005 |
| 24 | -0.18 | -0.27 | -0.1 | <0.001 |
| 36 | -0.23 | -0.3 | -0.16 | <0.001 |
| 48 | -0.02 | -0.15 | 0.1 | 0.703 |
| No thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.04 | -0.11 | 0.02 | 0.186 |
| 12 | -0.06 | -0.13 | 0 | 0.064 |
| 24 | -0.03 | -0.09 | 0.04 | 0.448 |
| 36 | -0.07 | -0.13 | -0.02 | 0.01 |
| 48 | -0.05 | -0.13 | 0.04 | 0.259 |
| No ACEi/ARBs nor thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.05 | -0.11 | 0 | 0.067 |
| 12 | -0.1 | -0.16 | -0.05 | 0.001 |
| 24 | -0.09 | -0.15 | -0.03 | 0.003 |
| 36 | -0.11 | -0.16 | -0.06 | <0.001 |
| 48 | -0.07 | -0.15 | 0 | 0.061 |
| No CCBs |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.07 | -0.13 | -0.01 | 0.024 |
| 12 | -0.06 | -0.13 | 0 | 0.039 |
| 24 | -0.05 | -0.11 | 0.01 | 0.091 |
| 36 | -0.09 | -0.14 | -0.04 | 0.001 |
| 48 | -0.06 | -0.13 | 0.01 | 0.101 |
| No beta-blocker |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.06 | -0.11 | 0 | 0.053 |
| 12 | -0.03 | -0.09 | 0.02 | 0.238 |
| 24 | 0 | -0.06 | 0.05 | 0.906 |
| 36 | -0.05 | -0.1 | -0.01 | 0.02 |
| 48 | -0.1 | -0.17 | -0.03 | 0.005 |
| **Erections hard enough for penetration?**  |  |  |  |  |
| No ACEi/ARBs |  |  |  |  |
| 0 | Ref.  |  |  |  |
| 6 | -0.06 | -0.16 | 0.03 | 0.212 |
| 12 | -0.04 | -0.14 | 0.06 | 0.398 |
| 24 | -0.15 | -0.24 | -0.05 | 0.004 |
| 36 | -0.25 | -0.34 | -0.17 | <0.001 |
| 48 | 0.13 | -0.01 | 0.27 | 0.077 |
| No thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.06 | -0.13 | 0.02 | 0.155 |
| 12 | -0.05 | -0.13 | 0.03 | 0.234 |
| 24 | -0.08 | -0.16 | 0 | 0.059 |
| 36 | -0.05 | -0.12 | 0.02 | 0.138 |
| 48 | 0.02 | -0.08 | 0.12 | 0.686 |
| No ACEi/ARB nor thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.04 | -0.11 | 0.02 | 0.19 |
| 12 | -0.04 | -0.11 | 0.03 | 0.297 |
| 24 | -0.1 | -0.17 | -0.04 | 0.003 |
| 36 | -0.08 | -0.14 | -0.03 | 0.004 |
| 48 | 0 | -0.09 | 0.09 | 0.962 |
| No CCB |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.1 | -0.17 | -0.02 | 0.01 |
| 12 | -0.05 | -0.13 | 0.02 | 0.174 |
| 24 | -0.12 | -0.2 | -0.05 | 0.002 |
| 36 | -0.14 | -0.2 | -0.08 | 0 |
| 48 | -0.09 | -0.18 | 0 | 0.045 |
| No beta-blocker |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.05 | -0.12 | 0.01 | 0.127 |
| 12 | -0.11 | -0.18 | -0.04 | 0.001 |
| 24 | -0.07 | -0.14 | 0 | 0.038 |
| 36 | -0.03 | -0.08 | 0.03 | 0.3 |
| 48 | -0.03 | -0.12 | 0.05 | 0.428 |
| **Erections maintained after penetration?**  |  |  |  |  |
| No ACEi/ARB |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.06 | -0.15 | 0.04 | 0.239 |
| 12 | -0.23 | -0.33 | -0.13 | <0.001 |
| 24 | -0.18 | -0.28 | -0.08 | <0.001 |
| 36 | -0.28 | -0.36 | -0.2 | <0.001 |
| 48 | 0.09 | -0.05 | 0.23 | 0.201 |
| No thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.02 | -0.1 | 0.06 | 0.603 |
| 12 | -0.12 | -0.2 | -0.04 | 0.003 |
| 24 | -0.2 | -0.28 | -0.12 | <0.001 |
| 36 | -0.2 | -0.27 | -0.14 | <0.001 |
| 48 | 0.18 | 0.08 | 0.28 | <0.001 |
| No ACEi/ARB nor thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.04 | -0.11 | 0.03 | 0.23 |
| 12 | -0.13 | -0.2 | -0.06 | <0.001 |
| 24 | -0.18 | -0.25 | -0.12 | <0.001 |
| 36 | -0.19 | -0.25 | -0.14 | <0.001 |
| 48 | 0.12 | 0.04 | 0.21 | 0.006 |
| No CCB |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.11 | -0.19 | -0.04 | 0.003 |
| 12 | -0.13 | -0.21 | -0.06 | 0.001 |
| 24 | -0.18 | -0.25 | -0.1 | <0.001 |
| 36 | -0.21 | -0.27 | -0.15 | <0.001 |
| 48 | -0.07 | -0.16 | 0.02 | 0.109 |
| No beta-blocker |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.08 | -0.14 | -0.01 | 0.021 |
| 12 | -0.19 | -0.25 | -0.12 | <0.001 |
| 24 | -0.08 | -0.14 | -0.01 | 0.017 |
| 36 | -0.1 | -0.15 | -0.04 | <0.001 |
| 48 | -0.05 | -0.14 | 0.03 | 0.203 |
| **Erections maintained to completion of intercourse?**  |  |  |  |  |
| No ACEi/ARBs |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.01 | -0.1 | 0.07 | 0.759 |
| 12 | -0.04 | -0.13 | 0.05 | 0.371 |
| 24 | -0.14 | -0.23 | -0.05 | 0.002 |
| 36 | -0.14 | -0.22 | -0.07 | <0.001 |
| 48 | 0.33 | 0.2 | 0.46 | <0.001 |
| No thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | 0.01 | -0.06 | 0.08 | 0.757 |
| 12 | -0.07 | -0.15 | 0 | 0.037 |
| 24 | -0.01 | -0.08 | 0.06 | 0.731 |
| 36 | -0.04 | -0.1 | 0.02 | 0.157 |
| 48 | 0.24 | 0.16 | 0.33 | <0.001 |
| No ACEi/ARB nor thiazide |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | 0 | -0.006 | 0.006 | 0.99 |
| 12 | -0.06 | -0.12 | 0.01 | 0.078 |
| 24 | -0.07 | -0.13 | 0 | 0.034 |
| 36 | -0.07 | -0.12 | -0.02 | 0.005 |
| 48 | 0.22 | 0.14 | 0.3 | 0 |
| No CCB |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.09 | -0.16 | -0.03 | 0.003 |
| 12 | -0.09 | -0.15 | -0.02 | 0.008 |
| 24 | -0.09 | -0.15 | -0.02 | 0.007 |
| 36 | -0.13 | -0.18 | -0.08 | <0.001 |
| 48 | 0.01 | -0.06 | 0.09 | 0.723 |
| No beta-blocker |  |  |  |  |
| 0 | Ref. |  |  |  |
| 6 | -0.09 | -0.14 | -0.03 | 0.003 |
| 12 | -0.1 | -0.16 | -0.05 | <0.001 |
| 24 | -0.03 | -0.09 | 0.02 | 0.248 |
| 36 | -0.07 | -0.11 | -0.02 | 0.005 |
| 48 | 0 | -0.07 | 0.07 | 0.946 |

Supplemental Table 4. Association of sexual questionnaires with clinical features in multivariable models

|  |  |  |
| --- | --- | --- |
| **Sex questionnaire** | **Beta (95%CI)** | **P-value** |
| **Men**  |  |  |
| **How satisfied with your overall sexual life?** |  |  |
| Age <65yr | Ref. | - |
| 65-75yr | -0.41 (-0.60 to -0.22) | <0.001 |
| >75yr | -0.84 (-1.06 to -0.63) | <0.001 |
| BMI <30Kg/m2 | Ref. | - |
| ≥30 | -0.25 (-0.41 to -0.09) | 0.002 |
| eGFR >60 ml/min/1.73m2 | Ref. | - |
| ≤60 | -0.22 (-0.40 to -0.03) | 0.023 |
| **Confidence that you could get and keep an erection?** |  |  |
| Age <65yr | Ref. | - |
| 65-75yr | -0.56 (-0.72 to -0.40) | <0.001 |
| >75yr | -0.89 (-1.07 to -0.70) | <0.001 |
| BMI <30Kg/m2 | Ref. | - |
| ≥30 | -0.22 (-0.36 to -0.09) | 0.002 |
| **Erections hard enough for penetration?** |  |  |
| Age <65yr | Ref. | - |
| 65-75yr | -0.68 (-0.87 to -0.50) | <0.001 |
| >75yr | -1.12 (-1.34 to -0.90) | <0.001 |
| BMI <30Kg/m2 | Ref. | - |
| ≥30 | -0.21 (-0.37 to -0.05) | 0.012 |
| **Erections maintained after penetration?** |  |  |
| Age <65yr | Ref. | - |
| 65-75yr | -0.71 (-0.90 to -0.52) | <0.001 |
| >75yr | -1.05 (-1.28 to -0.83) | <0.001 |
| BMI <30Kg/m2 | Ref. | - |
| ≥30 | -0.28 (-0.45 to -0.11) | 0.001 |
| Cardiovascular disease | -0.23 (-0.43 to -0.02) | 0.029 |
| **Erection maintained to completion of intercourse?** |  |  |
| Age <65yr | Ref. | - |
| 65-75yr | -0.61 (-0.80 to -0.42) | <0.001 |
| >75yr | -1.08 (-1.30 to -0.86) | <0.001 |
| BMI <30Kg/m2 | Ref. | - |
| ≥30 | -0.29 (-0.45 to -0.12) | <0.001 |
| eGFR >60 ml/min/1.73m2 | Ref. | - |
| ≤60 | -0.20 (-0.39 to -0.01) | 0.039 |
| **Women** |  |  |
| **How satisfied with your overall sexual life?** |  |  |
| Number of anti-hypertensive agents, 0  | Ref. | - |
| 1 | -0.54 (-0.88 to -0.20) | 0.002 |
| 2+ | -0.44 (-0.76 to -0.12) | 0.008 |
| **How often do you feel sexual desire or interest?** |  |  |
| Age <65yr | Ref. | - |
| 65-75yr | -0.22 (-0.43 to -0.01) | 0.040 |
| >75yr | -0.64 (-0.88 to -0.40) | <0.001 |
| White race | Ref. | - |
| Black | 0.30 (0.10-0.49) | 0.003 |
| Hispanic | 0.51 (0.25-0.77) | <0.001 |
| **How often do you become lubricated during sexual activity?** |  |  |
| Age <65yr | Ref.  | - |
| >75yr | -0.58 (-1.09 to -0.07) | 0.026 |
| eGFR >60 ml/min/1.73m2 | Ref.  | - |
| ≤60 | -0.35 (-0.70 to -0.01) | 0.049 |
| White race | Ref. | - |
| Black | 0.43 (0.09-0.77) | 0.013 |

Caption: only the variables with a p-value <0.05 are presented in the final model. The variables introduced in the model were: treatment assignment (standard vs. intensive), age, race, systolic blood pressure, body mass index, smoking history, number of anti-hypertensive agents, estimated glomerular filtration rate, presence of clinical or subclinical cardiovascular disease, total cholesterol levels, glucose levels, urinary albumin-to-creatinine ratio.

Legend: BMI, body mass index; eGFR, estimated glomerular filtration rate.

Supplemental Table 5. Association of erection questionnaires with the primary outcome

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Men** (Primary outcome events n. =117) | **HR** | **LCI** | **UCI** | **P** |
| **Erection questionnaire (1=worse; 5=best)** |  |  |  |  |
| Confidence that you could get and keep an erection? | 0.86 | 0.64 | 1.15 | 0.32 |
| Erections hard enough for penetration?  | 0.94 | 0.73 | 1.20 | 0.61 |
| Erections maintained after penetration?  | 1.00 | 0.78 | 1.28 | 0.99 |
| Erections maintained to completion of intercourse?  | 1.12 | 0.86 | 1.45 | 0.41 |
| **Women** (Primary outcome events n. =31) | **HR** | **LCI** | **UCI** | **P** |
| How satisfied with your overall sexual life? | 1.09 | 0.83 | 1.43 | 0.55 |
| How often do you feel sexual desire or interest? | 0.62 | 0.41 | 0.94 | 0.025 |
| How often do you feel sexually aroused during sexual activity? | 0.52 | 0.26 | 1.07 | 0.075 |
| How often do you become lubricated during sexual activity? | 0.71 | 0.36 | 1.39 | 0.31 |
| How often do you reach orgasm? | 0.63 | 0.33 | 1.22 | 0.17 |
| Satisfied with sexual relationship with partner? | 0.66 | 0.36 | 1.21 | 0.18 |
| Satisfied with emotional closeness during sexual activity? | 0.87 | 0.49 | 1.54 | 0.62 |

Legend: HR, hazard ratio; LCI, lower bound of the 95% confidence interval; UCI, upper bound of the 95% confidence interval.

Models adjusted on age, body mass index, presence of chronic kidney disease and cardiovascular disease.