

Supplemental Material

Table S1. Comparisons of baseline characteristics between patients with and without coronary microvascular dysfunction.

| Variables | Non-CMD (n =23) | CMD (n =14) | <i>p</i> -value |
|------------------------------------|-----------------|-------------|-----------------|
| Age, years | 41 ± 15 | 51 ± 15 | 0.059 |
| Male, n (%) | 12 (52) | 8 (57) | 0.769 |
| Disease Duration, years | 9 (2-15) | 12 (8-15) | 0.208 |
| Body mass index, kg/m ² | 19.7 ± 3.4 | 18.7 ± 3.0 | 0.385 |
| Hypertension, n (%) | 0 (0) | 1 (7) | 0.194 |
| Diabetes mellitus, n (%) | 1 (4) | 0 (0) | 0.429 |
| Dyslipidemia, n (%) | 1 (4) | 1 (7) | 0.715 |
| Laboratory data | | | |
| White Blood Cells, /μl | 7852 ± 3813 | 8464 ± 4277 | 0.654 |
| Hemoglobin, g/dl | 11.4 ± 2.0 | 11.4 ± 2.2 | 0.954 |
| Hematocrit, % | 35.2 ± 5.3 | 34.3 ± 6.1 | 0.629 |
| Platelets, ×10 ⁴ /μl | 28.8 ± 7.8 | 30.6 ± 10.4 | 0.556 |
| Serum creatinine, mg/dl | 0.65 ± 0.19 | 0.73 ± 0.28 | 0.296 |
| Total protein, mg/dl | 6.1 ± 0.9 | 6.4 ± 1.0 | 0.344 |
| Albumin, mg/dl | 3.2 ± 0.9 | 3.1 ± 0.8 | 0.541 |
| Total cholesterol, mg/dl | 145 ± 46 | 143 ± 48 | 0.901 |
| HDL cholesterol, mg/dl | 41 ± 18 | 44 ± 21 | 0.664 |
| LDL cholesterol, mg/dl | 85 ± 38 | 78 ± 29 | 0.581 |

| | | | |
|-----------------------|------------------|------------------|-------|
| Triglyceride, mg/dl | 101 ± 55 | 103 ± 41 | 0.925 |
| hs-CRP, ng/ml | 712 (290-6030) | 5145 (775-22975) | 0.147 |
| IL-6, pg/ml | 4.5 (1.6–9.0) | 10.7 (4.2–21.3) | 0.042 |
| TNF- α , pg/ml | 2.25 (1.03–4.38) | 4.95 (1.40–8.84) | 0.175 |

Values are mean \pm SD or number of patients (%). HDL, high density lipoprotein; LDL, low density lipoprotein; hs-CRP, high-sensitivity C-reactive protein; IL, interleukin; TNF, tumor necrosis factor.

Table S2. Comparisons of baseline echocardiographic parameters between patients with and without coronary microvascular dysfunction.

| Variables | Non-CMD (n =23) | CMD (n =14) | <i>p</i> -value |
|--------------------------|-----------------|--------------|-----------------|
| IVS thickness, cm | 7.9 ± 1.9 | 8.5 ± 1.4 | 0.361 |
| PW thickness, cm | 8.2 ± 1.4 | 8.3 ± 1.2 | 0.774 |
| LVDd, cm | 45.7 ± 4.8 | 45.6 ± 4.0 | 0.936 |
| LVDs, cm | 28.7 ± 4.0 | 28.0 ± 2.9 | 0.599 |
| Fractional shortening, % | 39.0 ± 5.5 | 39.0 ± 3.5 | 0.963 |
| Left atrial diameter, cm | 31.2 ± 4.8 | 30.6 ± 5.4 | 0.738 |
| Mitral E-wave, cm/s | 70.0 ± 18.1 | 71.9 ± 19.4 | 0.775 |
| Mitral A-wave, cm/s | 53.9 ± 15.1 | 61.5 ± 17.5 | 0.207 |
| E/A ratio | 1.4 ± 0.5 | 1.2 ± 0.5 | 0.461 |
| Septal e', cm/s | 9.5 ± 3.2 | 8.6 ± 3.3 | 0.389 |
| E/e' septal | 8.0 ± 2.8 | 8.9 ± 3.3 | 0.255 |
| Dct, ms | 199.9 ± 35.9 | 209.4 ± 47.1 | 0.527 |

Values are mean ± SD. IVS, interventricular septum; PW, posterior wall; LVDd, left ventricular end-diastolic diameter; LVDs, left ventricular end-systolic diameter; FS, fractional shortening; Dct, deceleration time of the mitral E-wave velocity.

Table S3. Comparisons of patient characteristics and treatment between patients with and without coronary microvascular dysfunction in Crohn's disease and Ulcerative colitis.

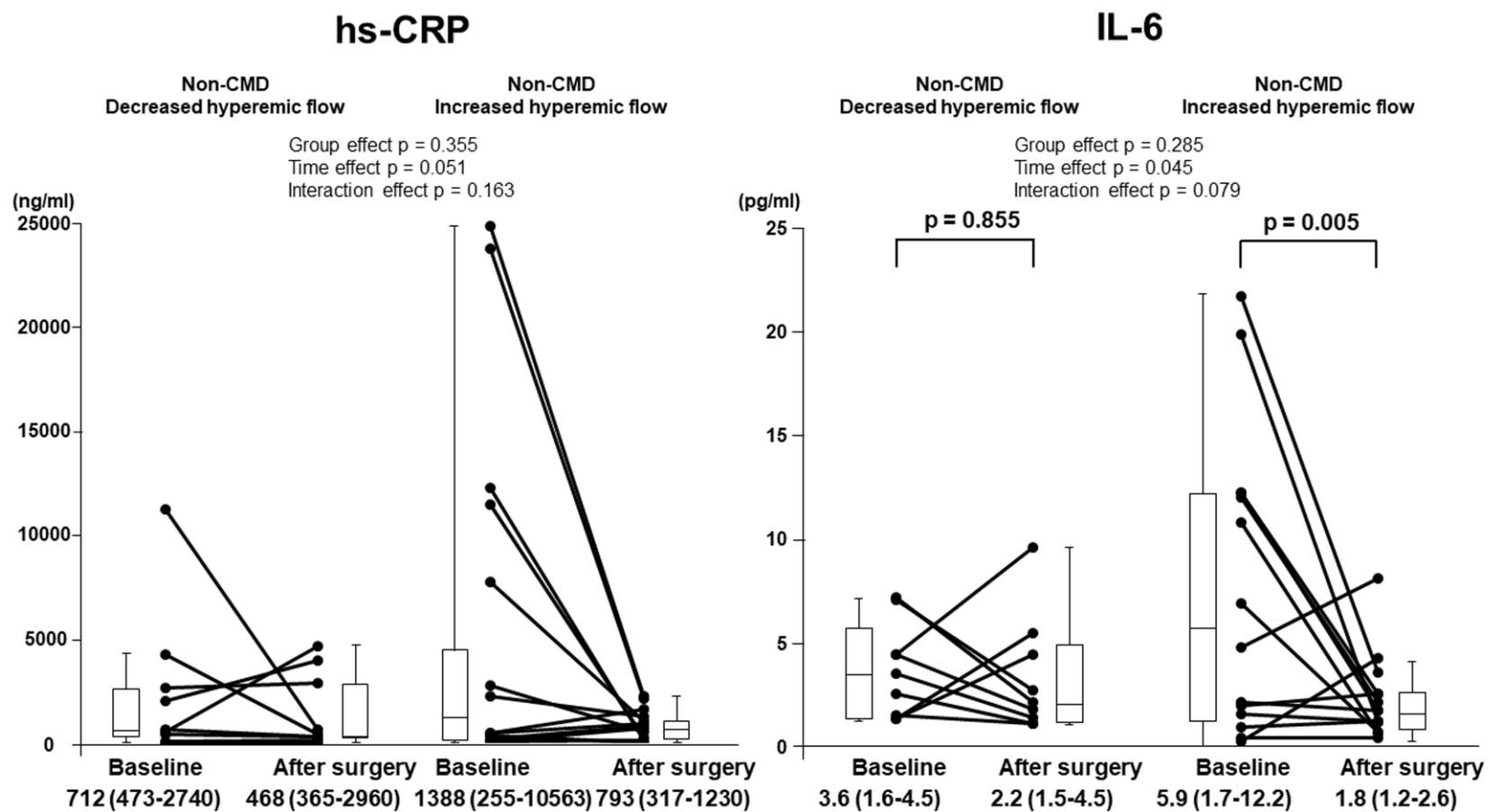
| Variables | CD | CD | UC | UC | <i>p</i> -value |
|-----------------------------|-----------|------------|----------|-----------|-----------------|
| | Non-CMD | CMD | Non-CMD | CMD | |
| | (n =13) | (n =9) | (n =10) | (n =5) | |
| Age, years | 37 ± 14 | 42 ± 10 | 45 ± 15 | 65 ± 10* | 0.008 |
| Male, % | 46 | 78 | 60 | 20 | 0.184 |
| Disease Duration, years | 11 (3-14) | 12 (10-15) | 2 (1-13) | 11 (6-12) | 0.273 |
| CDAI | 248 ± 71 | 240 ± 87 | - | - | 0.850 |
| UCDAI | - | - | 9 ± 2 | 9 ± 2 | 1.000 |
| Disease activity at surgery | | | | | 0.228 |
| Mild, % | 31 | 44 | 0 | 0 | |
| Moderate, % | 46 | 44 | 60 | 60 | |
| Severe, % | 23 | 12 | 40 | 40 | |
| Location of lesion | | | | | - |
| Ileum, % | 46 | 56 | - | - | 0.665 |
| Colon, % | 31 | 22 | - | - | 0.658 |
| Ileocolonic region, % | 23 | 22 | - | - | 0.962 |
| Total colon, % | - | - | 70 | 80 | 0.699 |
| Left-sided colon, % | - | - | 30 | 20 | 0.699 |
| Medications | | | | | |

| | | | | | |
|----------------------------|----|----|-----|-------|-------|
| TNF- α Inhibitor, % | 62 | 67 | 40 | 20 | 0.276 |
| 5-aminosalicylic acid, % | 77 | 89 | 60 | 0*†‡ | 0.006 |
| Steroid, % | 15 | 0 | 50† | 0 | 0.022 |
| Immunosuppressants, % | 8 | 0 | 0 | 60*†‡ | 0.002 |
| Surgical procedure | | | | | - |
| Small bowel resection, % | 15 | 33 | - | - | 0.323 |
| Ileocecal resection, % | 39 | 45 | - | - | 0.604 |
| Colonic resection, % | 46 | 22 | - | - | 0.251 |
| Subtotal colectomy, % | - | - | 50 | 20 | 0.264 |
| Total proctocolectomy, % | - | - | 50 | 80 | 0.264 |

Values are mean \pm SD, median and interquartile range or percentage. CD, crohn's disease; UC, ulcerative colitis, CMD, coronary microvascular dysfunction: CDAI, Crohn's Disease Activity Index; UCDAI, Ulcerative Colitis Disease Activity Index; TNF, tumor necrosis factor.

*: $p < .05$ versus CD Non-CMD. †: $p < .05$ versus CD CMD. ‡: $p < .05$ versus UC Non-CMD.

Figure S1. Comparisons of changes in high-sensitivity C-reactive protein (left) and interleukin-6 (right) between subjects with increased hyperemic coronary flow velocity and those with decreased hyperemic coronary flow velocity among patients with inflammatory bowel disease and non-coronary microvascular dysfunction.



CMD, coronary microvascular dysfunction; hs-CRP, high-sensitivity C-reactive protein; IL-6, interleukin-6.