**Supplemtary material for**

**Title:** Comparative Effectiveness of Famotidine in Hospitalized COVID-19 Patients

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**Supplemental Table 1. Cohorts characteristics of Famotidine and hydroxychloroquine users. We report the proportion of based-line characteristics and the standardized mean difference (SMD) before and after stratification. Less extreme SMD through stratification suggest improved balance between patient cohorts through propensity score adjustment**

| ***Characteristic*** | **Before PS[[1]](#footnote-1) adjustment** | **After PS1 adjustment** |
| --- | --- | --- |
| **Target** | **Comparator** |  | **Target** | **Comparator** |  |
| **%** | **%** | **SMD[[2]](#footnote-2)** | **%** | **%** | **SMD2** |
| Age group |   |   |   |   |   |   |
| 15 - 19 | <0.4 | 0.1 | 0.02 | <0.2 | <0.1 | 0 |
| 20 - 24 | 1.5 | 0.5 | 0.09 | 0.9 | 0.5 | 0.04 |
| 25 - 29 | 2.8 | 1.7 | 0.07 | 2.7 | 1.7 | 0.07 |
| 30 - 34 | 4.2 | 2.8 | 0.07 | 4.6 | 2.6 | 0.11 |
| 35 - 39 | 4.2 | 5.2 | -0.05 | 4.8 | 4.8 | 0 |
| 40 - 44 | 5.5 | 5.7 | -0.01 | 6.6 | 5.4 | 0.05 |
| 45 - 49 | 6.9 | 7.3 | -0.02 | 6.9 | 7 | 0 |
| 50 - 54 | 7.6 | 9.1 | -0.05 | 9.7 | 8.8 | 0.03 |
| 55 - 59 | 10.9 | 11.7 | -0.03 | 12.9 | 11.5 | 0.04 |
| 60 - 64 | 11.5 | 13.3 | -0.05 | 10.8 | 13.6 | -0.08 |
| 65 - 69 | 10.4 | 10.7 | -0.01 | 10.2 | 10.9 | -0.02 |
| 75 - 79 | 9.3 | 7.8 | 0.05 | 8.4 | 8.2 | 0.01 |
| 80 - 84 | 6.7 | 6.8 | 0 | 5.7 | 6.9 | -0.05 |
| 85 - 89 | 5.9 | 6.1 | -0.01 | 5.4 | 6.5 | -0.05 |
| 90 - 94 | 2.6 | 1.3 | 0.09 | 1.7 | 1.6 | 0 |
| Gender: female | 52.4 | 43.1 | 0.19 | 46.5 | 44.8 | 0.03 |
| Medical history: General |   |   |   |   |   |   |
| Acute respiratory disease | 51.2 | 67.1 | -0.33 | 67.5 | 66 | 0.03 |
| Attention deficit hyperactivity disorder | <0.4 | 0.3 | -0.02 | <0.2 | 0.4 | -0.06 |
| Chronic liver disease | 1.8 | 1.6 | 0.02 | 1 | 1.7 | -0.06 |
| Chronic obstructive lung disease | 13.7 | 9.3 | 0.14 | 10.6 | 10.1 | 0.01 |
| Crohn's disease | <0.4 | 0.2 | 0.02 | <0.2 | 0.2 | -0.01 |
| Dementia | 13.2 | 9 | 0.13 | 9.7 | 10 | -0.01 |
| Depressive disorder | 14.6 | 8.6 | 0.19 | 10.4 | 9.8 | 0.02 |
| Diabetes mellitus | 39.8 | 37.7 | 0.04 | 37.9 | 38.3 | -0.01 |
| Gastroesophageal reflux disease | 25.5 | 14.8 | 0.27 | 15.8 | 16.4 | -0.02 |
| Gastrointestinal hemorrhage | 2.4 | 1.2 | 0.09 | 1.5 | 1.4 | 0.01 |
| Human immunodeficiency virus infection | 1.4 | 1.4 | 0 | 2.1 | 1.4 | 0.05 |
| Hyperlipidemia | 43.7 | 40.4 | 0.07 | 39.2 | 41.5 | -0.05 |
| Hypertensive disorder | 44 | 43 | 0.02 | 41.7 | 43 | -0.03 |
| Lesion of liver | 1.9 | 1.4 | 0.04 | 1 | 1.5 | -0.05 |
| Obesity | 24.1 | 24 | 0 | 25.6 | 24.5 | 0.03 |
| Osteoarthritis | 10.1 | 7.7 | 0.08 | 9.4 | 8.3 | 0.04 |
| Pneumonia | 74.7 | 92.5 | -0.5 | 89.9 | 90.8 | -0.03 |
| Psoriasis | 0.5 | 0.4 | 0 | 0.6 | 0.4 | 0.03 |
| Renal impairment | 34.7 | 32.4 | 0.05 | 33.4 | 33.9 | -0.01 |
| Rheumatoid arthritis | 1.5 | 1.8 | -0.02 | 2 | 1.8 | 0.01 |
| Schizophrenia | 1.1 | 1.3 | -0.02 | 0.5 | 1.4 | -0.09 |
| Ulcerative colitis | 0.5 | 0.3 | 0.04 | 0.7 | 0.3 | 0.06 |
| Urinary tract infectious disease | 9.6 | 4.9 | 0.18 | 5.9 | 5.8 | 0 |
| Viral hepatitis C | 1.2 | 1.6 | -0.03 | 0.9 | 1.6 | -0.06 |
| Visual system disorder | 6.2 | 6 | 0.01 | 5.6 | 6.4 | -0.03 |
| Medical history: Cardiovascular disease |   |   |   |   |   |   |
| Atrial fibrillation | 14.4 | 9.5 | 0.15 | 10.5 | 10.8 | -0.01 |
| Cerebrovascular disease | 1.4 | 0.6 | 0.08 | 1.3 | 0.6 | 0.07 |
| Coronary arteriosclerosis | 17.1 | 13.7 | 0.1 | 13.8 | 14.6 | -0.02 |
| Heart disease | 40.2 | 33 | 0.15 | 34.4 | 35.4 | -0.02 |
| Heart failure | 13.9 | 10.4 | 0.11 | 10.6 | 11.4 | -0.03 |
| Ischemic heart disease | 9 | 8.2 | 0.03 | 8 | 8.8 | -0.03 |
| Peripheral vascular disease | 5.3 | 4 | 0.06 | 3.5 | 4.4 | -0.05 |
| Pulmonary embolism | 2.2 | 1.9 | 0.02 | 2.7 | 1.9 | 0.05 |
| Venous thrombosis | 2.1 | 1 | 0.08 | 1.5 | 1.2 | 0.03 |
| Medical history: Neoplasms |   |   |   |   |   |   |
| Hematologic neoplasm | 1 | 1.2 | -0.02 | 0.6 | 1.3 | -0.07 |
| Malignant lymphoma | 0.8 | 0.6 | 0.04 | 0.4 | 0.6 | -0.02 |
| Malignant neoplastic disease | 5.9 | 4.4 | 0.07 | 4.4 | 4.6 | -0.01 |
| Malignant tumor of breast | 0.6 | 0.3 | 0.05 | 0.3 | 0.3 | 0.01 |
| Malignant tumor of colon | <0.4 | 0.1 | 0 | <0.2 | <0.1 | -0.03 |
| Malignant tumor of urinary bladder | <0.4 | <0.1 | 0.05 | <0.2 | <0.1 | 0.01 |
| Primary malignant neoplasm of prostate | 0.4 | 0.4 | 0 | <0.2 | 0.4 | -0.06 |

**Supplemental Table 2. Cohorts characteristics of famotidine users and non-users. We report the proportion of based-line characteristics and the standardized mean difference (SMD) before and after stratification. Less extreme SMD through stratification suggest improved balance between patient cohorts through propensity score adjustment**

| **Characteristic** | **Before PS1 adjustment** | **After PS1 adjustment** |
| --- | --- | --- |
| **Target** | **Comparator** |  | **Target** | **Comparator** |  |
| **%** | **%** | **SMD2** | **%** | **%** | **SMD2** |
| Age group |   |   |   |   |   |   |
| 15 - 19 | <0.3 | 0.1 | 0.02 | <0.2 | 0.1 | 0.01 |
| 20 - 24 | 1.3 | 1.2 | 0.01 | 1.4 | 1.1 | 0.03 |
| 25 - 29 | 2.7 | 2.3 | 0.03 | 2.7 | 2 | 0.04 |
| 30 - 34 | 4.1 | 3.1 | 0.05 | 3.2 | 2.9 | 0.01 |
| 35 - 39 | 4 | 4.1 | -0.01 | 4.1 | 3.9 | 0.01 |
| 40 - 44 | 5.9 | 4.9 | 0.05 | 5.3 | 4.9 | 0.02 |
| 45 - 49 | 7.1 | 6.2 | 0.04 | 6.9 | 6.3 | 0.03 |
| 50 - 54 | 8.1 | 7.8 | 0.01 | 7.7 | 7.9 | -0.01 |
| 55 - 59 | 11.2 | 9.6 | 0.05 | 10.9 | 9.6 | 0.04 |
| 60 - 64 | 11.7 | 11 | 0.02 | 10.3 | 11.3 | -0.03 |
| 65 - 69 | 11.2 | 10.4 | 0.03 | 10.3 | 10.5 | -0.01 |
| 70 - 74 | 9.7 | 10.2 | -0.02 | 9.5 | 10.4 | -0.03 |
| 75 - 79 | 8.6 | 8.9 | -0.01 | 8.4 | 9.1 | -0.03 |
| 80 - 84 | 6 | 7.8 | -0.07 | 7 | 7.9 | -0.03 |
| 85 - 89 | 6 | 9.4 | -0.12 | 9.4 | 9.1 | 0.01 |
| 90 - 94 | 2.3 | 3 | -0.04 | 2.8 | 3 | -0.01 |
| Gender: female | 50.7 | 46.8 | 0.08 | 47 | 46.9 | 0 |
| Medical history: General |   |   |   |   |   |   |
| Acute respiratory disease | 54.5 | 58.4 | -0.08 | 63 | 60 | 0.06 |
| Attention deficit hyperactivity disorder | <0.3 | 0.4 | -0.02 | <0.2 | 0.3 | -0.04 |
| Chronic liver disease | 1.6 | 1.8 | -0.02 | 1.3 | 1.9 | -0.05 |
| Chronic obstructive lung disease | 12.5 | 11.1 | 0.04 | 12.5 | 11.5 | 0.03 |
| Crohn's disease | 0.4 | 0.3 | 0.02 | <0.2 | 0.3 | -0.01 |
| Dementia | 11.5 | 14.2 | -0.08 | 13 | 14.1 | -0.03 |
| Depressive disorder | 13.1 | 10.3 | 0.09 | 9.8 | 10.7 | -0.03 |
| Diabetes mellitus | 39.1 | 36.3 | 0.06 | 36.9 | 37.1 | 0 |
| Gastroesophageal reflux disease | 25.1 | 15.5 | 0.24 | 15.8 | 16.4 | -0.02 |
| Gastrointestinal hemorrhage | 2 | 1.6 | 0.03 | 1.8 | 1.7 | 0.01 |
| Human immunodeficiency virus infection | 1.3 | 1.2 | 0.01 | 1.5 | 1.2 | 0.02 |
| Hyperlipidemia | 42.8 | 40.8 | 0.04 | 42.1 | 41.8 | 0.01 |
| Hypertensive disorder | 42.9 | 41 | 0.04 | 40 | 41.4 | -0.03 |
| Lesion of liver | 1.6 | 1.7 | 0 | 1.5 | 1.8 | -0.02 |
| Obesity | 24.5 | 21.1 | 0.08 | 22.4 | 21.9 | 0.01 |
| Osteoarthritis | 10.1 | 8 | 0.07 | 9.5 | 8.4 | 0.04 |
| Pneumonia | 79.2 | 81.9 | -0.07 | 83.9 | 83 | 0.02 |
| Psoriasis | 0.3 | 0.5 | -0.02 | 0.2 | 0.5 | -0.04 |
| Renal impairment | 33.9 | 35.9 | -0.04 | 37.4 | 36.8 | 0.01 |
| Rheumatoid arthritis | 1.5 | 1.6 | -0.01 | 1.1 | 1.7 | -0.05 |
| Schizophrenia | 0.9 | 1.7 | -0.07 | 0.8 | 1.7 | -0.08 |
| Ulcerative colitis | 0.5 | 0.3 | 0.04 | 0.5 | 0.3 | 0.04 |
| Urinary tract infectious disease | 8.8 | 7.3 | 0.05 | 7.8 | 7.7 | 0 |
| Viral hepatitis C | 0.9 | 1.4 | -0.04 | 1 | 1.4 | -0.04 |
| Visual system disorder | 6.3 | 6.3 | 0 | 6.2 | 6.6 | -0.02 |
| Medical history: Cardiovascular disease |   |   |   |   |   |   |
| Atrial fibrillation | 13 | 13.1 | 0 | 13.7 | 13.4 | 0.01 |
| Cerebrovascular disease | 1.4 | 1 | 0.04 | 1.5 | 1 | 0.05 |
| Coronary arteriosclerosis | 17 | 16.5 | 0.01 | 17 | 16.7 | 0.01 |
| Heart disease | 38.8 | 38.2 | 0.01 | 39.6 | 39 | 0.01 |
| Heart failure | 13.2 | 13.9 | -0.02 | 14.4 | 14.2 | 0.01 |
| Ischemic heart disease | 9.3 | 10.6 | -0.04 | 10.5 | 10.8 | -0.01 |
| Peripheral vascular disease | 5.1 | 4.9 | 0.01 | 4.5 | 5 | -0.02 |
| Pulmonary embolism | 1.8 | 1.7 | 0 | 1.8 | 1.8 | 0 |
| Venous thrombosis | 1.7 | 1.2 | 0.04 | 1.7 | 1.3 | 0.03 |
| Medical history: Neoplasms |   |   |   |   |   |   |
| Hematologic neoplasm | 1.4 | 1.2 | 0.01 | 1.3 | 1.3 | 0 |
| Malignant lymphoma | 0.8 | 0.7 | 0.01 | 1 | 0.8 | 0.02 |
| Malignant neoplasm of anorectum | <0.3 | 0.1 | 0 | <0.2 | 0.1 | 0.02 |
| Malignant neoplastic disease | 6 | 5.2 | 0.03 | 5.7 | 5.5 | 0.01 |
| Malignant tumor of breast | 0.5 | 0.4 | 0.02 | 0.4 | 0.4 | 0 |
| Malignant tumor of colon | <0.3 | 0.1 | -0.03 | <0.2 | 0.1 | -0.02 |
| Malignant tumor of urinary bladder | <0.3 | 0.1 | 0.02 | <0.2 | 0.1 | 0.02 |
| Primary malignant neoplasm of prostate | 0.5 | 0.6 | -0.02 | 0.4 | 0.6 | -0.03 |

1. Propensity score [↑](#footnote-ref-1)
2. standardized mean difference [↑](#footnote-ref-2)