**Supplementary Material**

**Supplementary Methods**

**List of immunosuppressive medications beyond > 10mg of prednisone (or equivalent) daily for more than 28 days:**

Abatacept

Adalimumab

Alefacept

Anakinra

Anti-thymocyte globulin (rabbit and horse)

Azathioprine

Basiliximab

Belatacept

Belimumab

Brodalumab

Canakinumab

Cylosporine

Certolizumab

Daclizumab

Dupilumab

Eculizumab

Efalizumab

Etanercept

Everolimus

Fingolimod

Golimumab

Infliximab

Ixekizumab

Leflunomide

Lenalidomide

Mepolizumab

Methotrexate

Muromonab-CD3

Mycophenolate

Natalizumab

Omalizumab

Pomalidomide dimethyl fumarate

Reslizumab

Rilonacept

Rituximab

Sarilumab

Secukinumab

Sirolimus

Situximab

Tacrolimus

Teriflunomide

Thalidomide

Tocilizumab

Ustekinumab

Vedolizumab

**Supplementary Table S1. Baseline Characteristics: Second Sensitivity Analysis**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Virus****(n=45)** | **Other****(n=606)** | **P** |
| *Demographics* |  |  |  |
| -Male,% | 62.6% | 59.1% | 0.370 |
| -Age, yrs, mean+SD | 55.3+16.6 | 57.5+16.2 | 0.754 |
| -Race |  |  |  |
| Caucasian,% | 66.7% | 65.0% | 0.873 |
| African American,% | 26.7% | 30.7% |  |
| Other, % | 6.7% | 4.3% |  |
| *Comorbidities* |  |  |  |
| -COPD,% | 26.7% | 15.8% | 0.093 |
| -CHF% | 42.2% | 43.1% | 0.999 |
| -MI,% | 24.4% | 26.2% | 0.862 |
| -Stroke,% | 20.0% | 24.9% | 0.591 |
| -CKD,% | 33.3% | 37.5% | 0.634 |
| -Liver disease, % | 11.1% | 14.0% | 0.822 |
| -DM,% | 26.7% | 28.4% | 0.866 |
| -Charlson Score, mean+SD | 5.2+3.8 | 5.3+3.3 | 0.829 |
| *Severity of Illness* |  |  |  |
| -MV day of onset, median | 5 | 5 | 0.817 |
| -Shock, % | 60.0% | 54.6% | 0.737 |
| -APACHE II, mean+SD | 16.1+5.4 | 15.5+5.4 | 0.794 |

Abbreviations: APACHE – Acute Physiology and Chronic Health Evaluation; CHF, Congestive heart failure; CKD, Chronic kidney disease; COPD, Chronic obstructive pulmonary disease; DM – Diabetes mellitus; MI – myocardial infarction; MV – mechanical ventilation; SD – standard deviation; YRS – years.

**Supplementary Table S2. Outcomes: Second Sensitivity Analysis**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Virus****(n=45)** | **Other****(n=606)** | **P** |
| Hospital Mortality,% | 22.2% | 21.8% | 0.999 |
| 30-day Mortality,% | 35.6% | 27.7% | 0.303 |
| 90-day Mortality, % | 40.0% | 32.0% | 0.322 |
| Hospital LOS after VAP, d, median | 16 | 15 | 0.268 |
| Total ICU LOS, d, median | 20 | 17 | 0.118 |
| Total Hospital LOS, d, median | 22 | 21 | 0.276 |
| Readmission, % | 6.7% | 19.0% | 0.043 |
| New, RRT, % | 11.4% | 6.3% | 0.277 |

Abbreviation: D – day; ICU – intensive care unit; LOS – length of stay; RRT – renal replacement therapy; VAP – ventilator-associated pneumonia.