**Supplemental Material**

**SARS-CoV-2 infection during the Omicron surge among patients receiving dialysis: the role of circulating receptor-binding domain antibodies and vaccine doses**

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**STable 1. Observed vaccine type combinations among patients in the main analytic cohort (sorted in decreasing order of observed percent)**

|  |  |  |
| --- | --- | --- |
| **Vaccine type combination** | **Count** | **Percent** |
| U      |       852     |   23.83   |
| BB     |       728     |   20.36    |
| MM     |       657     |   18.37    |
| MMM    |       449     |   12.56    |
| BBB  |       344    |     9.62    |
| B      |       245    |     6.85    |
| M      |       169    |     4.73    |
| MMB   |         59    |     1.65    |
| MB    |         20    |     0.56    |
| BBM   |         20    |     0.56    |
| MBB    |         7    |     0.20    |
| MMMM   |         6    |     0.17    |
| MBM    |         5    |     0.14    |
| BBBB   |         5    |     0.14    |
| BM     |         4    |     0.11    |
| MBBB   |         1    |     0.03    |
| BMM    |         1    |     0.03    |
| BMMB |         1    |     0.03    |
| BMB   |         1    |     0.03    |
| BBMB |         1    |     0.03    |
| BBBM   |         1    |     0.03    |

U: Unvaccinated; M: mRNA1273; B: BNT162b2.

**STable 2. Characteristics of patients with a RBD antibody test performed between December 1 through December 24, 2021, alive and on dialysis**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **IgG index** **<23** | **IgG index** **≥ 23** | **Overall** |
|  | N=1773**\*** (50.6) | N=1731 (49.4) | N=3504 (100) |
| **Age (years), mean (SD)** | 61.6 (14.1) | 64.0 (13.9) | 62.8 (14.0) |
| 18 to 44  | 214 (12.1) | 169 (9.8) | 383 (10.9) |
| 45 to 64 | 783 (44.2) | 654 (37.8) | 1437 (41.0) |
| 65 to 79 | 598 (33.7) | 681 (39.3) | 1279 (36.5) |
| ≥ 80 | 178 (10.0) | 227 (13.1) | 405 (11.6) |
| **Women** | 758 (42.8) | 722 (41.7) | 1480 (42.2) |
| **Race and Ethnicity**  |  |  |  |
| Hispanic | 206 (11.6) | 290 (16.8) | 496 (14.2) |
| Non-Hispanic Black | 461 (26.0) | 441 (25.5) | 852 (24.3) |
| Non-Hispanic Other$ | 240 (13.5) | 391 (22.6) | 534 (15.2) |
| Non-Hispanic White | 533 (30.1) | 294 (17.0) | 974 (27.8) |
| Missing | 333 (18.8) | 315 (18.2) | 648 (18.5) |
| **Region** |  |  |  |
| Northeast | 177 (10.0) | 142 (8.2) | 319 (9.1) |
| South | 949 (53.5) | 784 (45.3) | 1733 (49.5) |
| Midwest | 189 (10.7) | 121 (7.0) | 310 (8.9) |
| West | 458 (25.8) | 684 (39.5) | 1142 (32.6) |
| **Diabetes**  | 961 (54.2) | 1073 (62.0) | 2034 (58.0) |
| **Vaccine doses**  |  |  |
| 0 | 604 (34.1) | 228 (13.2) | 832 (23.7) |
| 1 | 210 (11.8) | 194 (11.2) | 404 (11.5) |
| 2 | 753 (42.5) | 620 (35.8) | 1373 (39.2) |
| 3 or more | 206 (11.6) | 689 (39.8) | 895 (25.5) |

Data are shown as percentages unless otherwise specified. RBD = receptor-binding domain;SD, standard deviation.

$Persons self-reporting Asian, American Indian, Alaskan, and Pacific Islander heritages are captured as ‘other.’

\*IgG index < 10, N=1561; IgG 10-23, N=212

**STable 3. Sensitivity analyses for relative risk of SARS CoV-2 during the Omicron period at varying RBD thresholds and by vaccine type**

|  |  |
| --- | --- |
|  | **Relative risk adjusted for Age, sex, region and prior SARS-CoV-2 infection\*** |
| **RBD IgG index value**  |  |
| < 1 vs ≥ 1 | 2.3 (1.7, 3.1) |
| 10 vs ≥ 10 | 2.1 (1.7, 2.6) |
| 23 vs ≥ 23 | 2.3 (1.9, 2.9) |
| 30 vs ≥ 30 | 2.3 (1.8, 2.9) |
| 40 vs ≥ 40 | 2.4 (1.9, 3.0) |
| **Vaccine type^** |  |
| Unvaccinated  | Ref |
| BNT162b2 1-2 doses | 0.69 (0.54, 0.89) |
| BNT162b2 3+ doses | 0.60 (0.41, 0.87) |
| mRNA1273 1-2 doses | 0.56 (0.42, 0.75) |
| mRNA1273 3+ doses | 0.40 (0.24, 0.57) |

^ N=3385 for persons with homologous (all doses from the same manufacturer) vaccination

\*as documented in the electronic health record

**STable 4. Proportions of patients with documented SARS CoV-2 infection by RBD index value categories**

|  |  |  |
| --- | --- | --- |
| **RBD IgG Index value**  | **N**  | **N with SARS CoV-2 infection\*^** |
| <1 | 189 | 41 (22%) |
| 1 to < 10 | 1372 | 174 (13%) |
| 10 to <23 | 212 | 25 (12%) |
| 23 to < 50 | 195 | 19 (10%) |
| 50 to <100 | 160 | 15 (9%) |
| ≥100 | 1311 | 65 (5%) |

^()=% of total in the RBD index value category with COVID-19

\*as documented in the electronic health record

**STable 5. Number of patients included in each 30-day period in Figures 2A and B.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Days since** **first dose** |  | **mRNA1273** |  | **BNT162b2** |
|  | **1-2 doses** | **3+ doses** |  | **1-2 doses** | **3+ doses** |
| 0-30 |  | 149 | 1,105 |  | 669 | 568 |
| 31-60 |  | 152 | 1,086 |  | 675 | 560 |
| 61-90 |  | 142 | 1,128 |  | 682 | 573 |
| 91-120 |  | 134 | 1,113 |  | 681 | 558 |
| 121-150 |  | 137 | 1,121 |  | 663 | 549 |
| 151-180 |  | 134 | 1,121 |  | 662 | 555 |
| 181-210 |  | 129 | 1,106 |  | 669 | 541 |
| 211-240 |  | 125 | 1,103 |  | 639 | 525 |
| 241-270 |  | 107 | 1,041 |  | 372 | 311 |
| 271-300 |  | 56 | 694 |  | 234 | 178 |
| 301-330 |  | 27 | 336 |  | 117 | 99 |

**SFigure 1. Boxplots of antibody index values between February 1 through December 24 2021 plotted by days since first dose, measured in 30-day periods. A. mRNA1273 B. BNT162b2**



**A**



**B**

**SFigure 2. Boxplots of antibody index values plotted by documented SARS-CoV-2 infection and number of vaccine doses**



Note that, median values for those patients with 3+ doses who did not contract a documented infection is ≥150.