

Attenuated antibody responses to respiratory syncytial virus vaccination in hematologic malignancies: impact of anti-CD20 therapy

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Supplementary Table 1. Baseline demographic and clinical characteristics of the efficacy cohort

Characteristic	CLL (N=33)	MM** (N=29)	B-NHL* (N=17)	Total (N=79)
Age at vaccination – years				
Median (IQR)	72 (68-77)	74 (68-78)	74 (68-80)	73 (68-78)
Gender – N, (%)				
Males	23 (69.7)	20 (69.0)	7 (41.2)	50 (63.3)
Females	10 (30.3)	9 (31.0)	10 (58.8)	29 (36.7)
Time from diagnosis to vaccination – months				
Median (IQR)	122.0 (74.0-181.0)	63.0 (35.0-98.0)	56.0 (41.0-92.0)	84.0 (47.0-127.5)
Time from T0 to T1 – days				
Median (IQR)	42 (35-46)	44 (37-51)	40 (35-52)	42 (35-50)
Treatment status at the time of vaccination – N, (%)				
Treatment Naïve	8 (24.2)	1 (3.5)	2 (11.8)	11 (13.9)
On treatment	19 (57.6)	21 (72.4)	6 (35.3)	46 (58.2)
Post treatment	6 (18.2)	7 (24.1)	9 (52.9)	22 (27.9)
Prior lines of therapy – N, (%)				
1	14/33 (42.4)	19/29 (65.5)	11/17 (64.7)	44/79 (55.7)
≥2	11/33 (33.3)	9/29 (31.0)	4/17 (23.5)	24/79 (30.4)
Any exposure to anti-CD20 treatment – N, (%)				
Yes	18 (54.5)	0 (0)	16 (94.1)	34 (43.0)
No	15 (45.5)	29 (100)	1 (5.9)	45 (57.0)
Within 12m before vaccination	2/18 (11.1)	0 (0)	6/16 (37.5)	8/34 (23.5)
Exposure to anti-CD38 treatment within 24 months before vaccination – N, (%)				
Yes	0 (0)	12/13 (92.3)	0 (0)	12/13 (92.3)
Active BTKi monotherapy – N, (%)				
Yes	12/33 (36.4)	0 (0)	2/17 (11.8)	14/79 (17.7)
Receiving IVIG treatment – N, (%)				
Yes	6/33 (18.2)	10/29 (34.5)	2/17 (11.8)	18/79 (22.8)
IgG level at time of vaccination – mg/dL				
Median (IQR)	599.5 (472.0-992.3)	488.0 (342.0-742.0)	605.0 (569.8-675.3)	580.0 (374.0-878.0)
IgM level at time of vaccination – mg/dL				
Median (IQR)	25.0 (18.0-66.0)	19.0 (<16-26.5)	48.0 (24.0-178.5)	21.5 (<16 – 51.8)
Lymphocyte count at time of vaccination - 10 ³ /uL				
Median (IQR)	2.6 (1.7-5.4)	1.2 (0.8-1.5)	1.2 (0.8-2.8)	1.5 (1.0-2.6)

CLL – Chronic Lymphocytic Leukemia; MM – Multiple Myeloma; T0 – pre- vaccination; T1 – peak response; BTKi – Bruton Tyrosine Kinase Inhibitor; IgG – Immunoglobulin G; IgM – Immunoglobulin M; IQR – Interquartile range; IVIG - Intravenous Immunoglobulin

*B-cell non-Hodgkin's Lymphoma (B-NHL) subtypes include: Diffuse large B-cell lymphoma (N=5), Marginal zone lymphoma (N=6), Mantle cell lymphoma (N=2), Follicular lymphoma (N=3), Indolent B-cell lymphoma (N=1)

**MM heavy chain characteristics: IgG=18/29 (62.1%); IgA=6/29 (20.7%); IgM=1/29 (3.4%); None=4/29 (13.8%%)

Supplementary Table 2. Distribution of hematological active treatments in the efficacy cohort

Active Treatment type – N, (%)	CLL (N=19)	MM (N=21)	B-NHL (N=6)	Total (N=46)
Anti-CD38-based therapy	0 (0)	12 (57.1)	0 (0)	12 (26.1)
Anti-CD20 with chemotherapy [^]	0 (0)	0 (0)	1 (16.7)	1 (2.2)
Anti-CD20 monotherapy	0 (0)	0 (0)	1 (16.7)	1 (2.2)
Anti-CD20 + venetoclax	2 (10.5)	0 (0)	0 (0)	2 (4.4)
Anti-CD20 + BTKi	3 (15.8)	0 (0)	1 (16.7)	4 (8.7)
BiTE for B-NHL	0 (0)	0 (0)	1 (16.7)	1 (2.2)
BTKi monotherapy	12 (63.2)	0 (0)	2 (33.3)	14 (30.4)
BTKi + Venetoclax	1 (5.3)	0 (0)	0 (0)	1 (2.2)
Venetoclax monotherapy	1 (5.3)	0 (0)	0 (0)	1 (2.2)
BiTE for MM	0 (0)	3 (14.3)	0 (0)	3 (6.5)
Other anti-MM treatments ^{^^}	0 (0)	6 (28.6)	0 (0)	6 (13.0)

CLL – Chronic Lymphocytic Leukemia; MM – Multiple Myeloma; B-NHL- B-cell non-Hodgkin's Lymphoma; BTKi – Bruton Tyrosine Kinase Inhibitor; BiTE – Bispecific T-cell Engager

[^] Rituximab + CHOP (cyclophosphamide, doxorubicin, vincristine and prednisone)

^{^^}Immunomodulators ± Proteasome inhibitors