Vaccination chez les patients d'hématologie

Quel délai ?

21 Novembre 2025

Docteur SAADE Anastasia

RECOMMANDATIONS VACCINALES

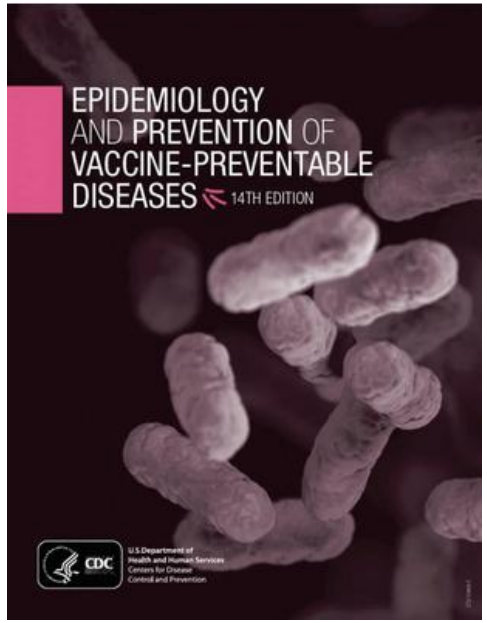
➔ Patients vivant avec une immunodépression

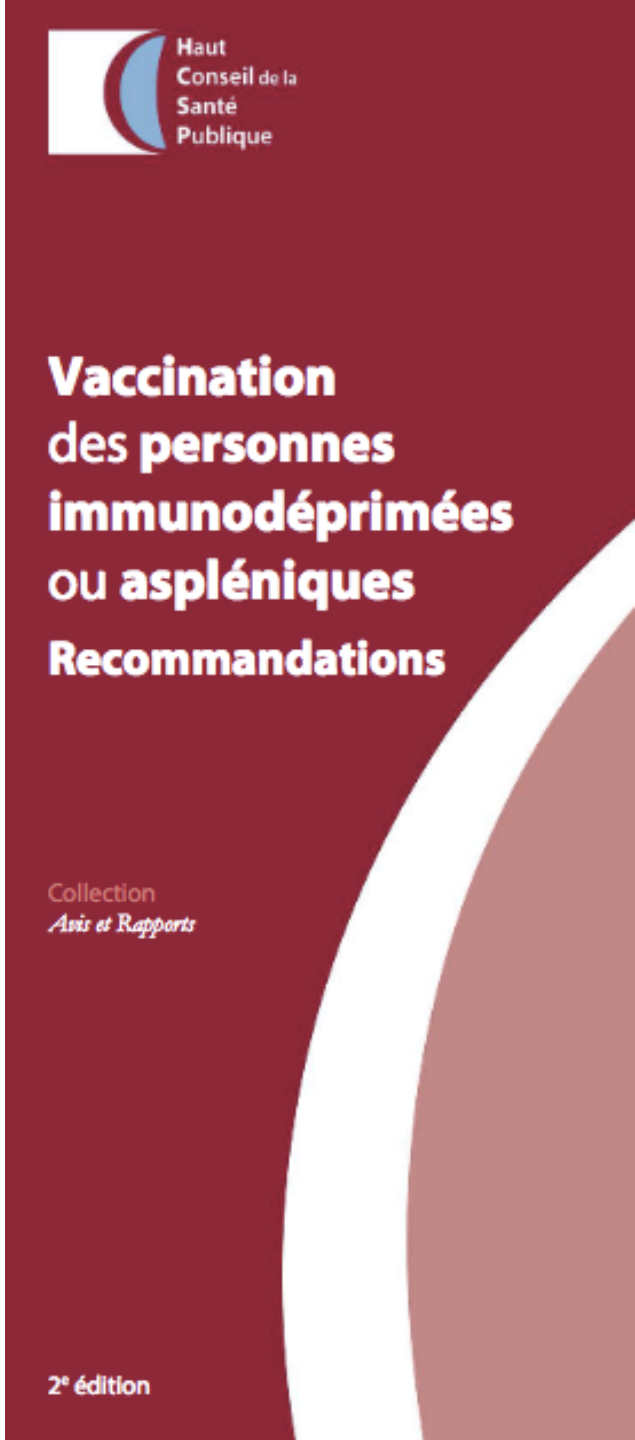
Chapter 7: Immunisation of individuals with underlying medical conditions January 2020

7

Immunisation of individuals with underlying medical conditions

Immunisation of individuals with underlying medical conditions





RECOMMANDATIONS VACCINALES

➔ Patients atteints d'une hémopathie maligne

Cochrane Database of Systematic reviews | Review - Intervention

Vaccines for preventing infections in adults with haematological malignancies

Ana-Mihaela Zorger, Caroline Hirsch, Mandy Baumann, Merit Feldmann, Paul J Bröckelmann, Sibylle Mellinghoff, Ina Monsef, Nicole Skoetz, Nina Kreuzberger Authors' declarations of interest

Version published: 21 May 2025 Version history

https://doi.org/10.1002/14651858.CD015530.pub2

- ✓ 6 études (4 RCTs, 2 controlled NRSIs)
- ✓ N=25 886

➔ Aucune donnée sur le timing de la vaccination

RECOMMANDATIONS VACCINALES

➔ Patients atteints d'une hémopathie maligne

Lancet Infect Dis 2019;
19: e188–99

Published Online
February 7, 2019

Vaccination and haematological malignancies 1

Vaccination of patients with haematological malignancies who did not have transplantations: guidelines from the 2017 European Conference on Infections in Leukaemia (ECIL 7)

Malgorzata Mikulska, Simone Cesaro, Hugues de Lavallade, Roberta Di Blasi, Sigrun Einarsdottir, Giuseppe Gallo, Christina Rieger, Dan Engelhard, Thomas Lehrnbecher, Per Ljungman, Catherine Cordonnier, on behalf of the European Conference on Infections in Leukaemia group

Mikulska M, Cesaro S, de Lavallade H, Di Blasi R, Einarsdottir S, Gallo G, Rieger C, Engelhard D, Lehrnbecher T, Ljungman P, Cordonnier C; European Conference on Infections in Leukaemia group. Vaccination of patients with haematological malignancies who did not have transplantations: guidelines from the 2017 European Conference on Infections in Leukaemia (ECIL 7). Lancet Infect Dis. 2019 Jun;19(6):e188-e199. doi: 10.1016/S1473-3099(18)30601-7. Epub 2019 Feb 8. Erratum in: Lancet Infect Dis. 2019 Apr;19(4):e109. doi: 10.1016/S1473-3099(19)30100-8. PMID: 30744964.

RECOMMANDATIONS VACCINALES

➔ Patients atteints d'une hémopathie maligne

	Inactivated influenza vaccine	Pneumococcal vaccines	Other inactivated vaccines	Comments
AML and MDS	At the end of intensive chemotherapy in patients with AML or MDS, a single dose is recommended yearly as long as the patient is considered immunocompromised (B II u)	3–6 months after the end of chemotherapy, patients with AML or MDS should be (re) vaccinated according to age and country recommendations	In countries with high HBV prevalence where a high risk of HBV transmission during chemotherapy exists, HBV vaccination starting before and continuing during chemotherapy can be administered (C II u). 3–6 months after the end of chemotherapy, patients with AML or MDS should be (re) vaccinated according to age and country recommendations	Patients with MDS who do not receive any specific treatment should have their vaccine programme revised according to age and country recommendations
CML	Patients with CML should receive one dose yearly (B II u)	Patients with CML should be vaccinated against *Streptococcus pneumoniae* (C II t). Although there are no data on the response to PCV, it is recommended to give one dose of PCV followed 2 months later by one dose of PPSV23	According to age and country recommendation	The expected response rate during dasatinib or bosutinib treatment might be lower than with the other tyrosine kinase inhibitors
Other chronic myeloproliferative neoplasms	According to age and country recommendation	According to age and country recommendation	According to age and country recommendation	There are no data on the vaccine response under ruxolitinib

Mikulska M, et al.. Vaccination of patients with haematological malignancies who did not have transplantations: guidelines from the 2017 European Conference on Infections in Leukaemia (ECIL 7). Lancet Infect Dis. 2019 Jun;19(6):e188-e199. doi: 10.1016/S1473-3099(18)30601-7. Epub 2019 Feb 8. Erratum in: Lancet Infect Dis. 2019 Apr;19(4):e109. doi: 10.1016/S1473-3099(19)30100-8. PMID: 30744964.

RECOMMANDATIONS VACCINALES

➔ Patients atteints d'une hémopathie maligne

	Inactivated influenza vaccine	Pneumococcal vaccines	Other inactivated vaccines	Comments
Multiple myeloma	Yearly vaccination (one dose) is strongly recommended (A II u) as long as the patient is considered immunocompromised	One dose of PCV13 followed by one dose of PPSV23, at least 8 weeks later, is recommended (B II u), preferably before treatment or during maintenance	Other inactive vaccines should be considered 3–6 months after the end of treatment, according to age, comorbidities, and country recommendations	LAVs are contra-indicated until at least 3 months after the end of chemotherapy (D III)
Lymphoma	Yearly vaccination (one dose) is strongly recommended (A II u) as long as the patient is considered immunocompromised, except in patients receiving intensive chemotherapy or who are receiving or have received anti-CD20 antibodies in the previous 6 months	One dose of PCV13 followed by one dose of PPSV23, at least 8 weeks later, is recommended (B II t), preferably before treatment or during maintenance, except in patients who are receiving high-dose chemotherapy or who are receiving or have received anti-CD20 antibodies in the previous 6 months	Human papillomavirus vaccine is recommended in healthy adolescents and young adults according to country recommendations for age after the end of treatment (B II t). Other inactive vaccines should be considered 3–6 months after the end of treatment, according to age, comorbidities, and country recommendations	In patients who are receiving or have received anti-CD20 antibodies in the previous 6 months, any inactivated vaccine should be delayed for at least 6 months after the last dose (B II u for IIV). LAVs are contra-indicated until at least 3 months after the end of chemotherapy (D III)
Chronic lymphocytic leukaemia	Same recommendation as for lymphoma patients	One dose of PCV13 followed by one dose of PPSV23, at least 8 weeks later, are recommended (B II u), preferably before treatment	Same recommendation as for lymphoma patients	Same recommendation as for lymphoma patients. Novel drugs might significantly impair the vaccination response

Mikulska M, et al.. Vaccination of patients with haematological malignancies who did not have transplantations: guidelines from the 2017 European Conference on Infections in Leukaemia (ECIL 7). Lancet Infect Dis. 2019 Jun;19(6):e188-e199. doi: 10.1016/S1473-3099(18)30601-7. Epub 2019 Feb 8. Erratum in: Lancet Infect Dis. 2019 Apr;19(4):e109. doi: 10.1016/S1473-3099(19)30100-8. PMID: 30744964.

RECOMMANDATIONS VACCINALES

➔ Patients atteints d'une hémopathie maligne

TABLE 4 Vaccination schedule[a] for adult patients treated with chimeric antigen receptor T-cell (CAR-T) therapy.[99]

Vaccines	Pre-CAR-T	≥6 months	≥8 months	≥10 months	≥12 months	≥18 months
IIV	Influenza	Influenza				
PCV		PCV13	PCV13	PCV13		
PPSV23						PPSV23
DTaP		DTaP	Td	Td		
HAV		HAV			HAV	
HBV		HBV	HBV		HBV	
Varicella zoster[b]					aRZV	aRZV

Reynolds G, Hall VG, Teh BW. Vaccine schedule recommendations and updates for patients with hematologic malignancy post-hematopoietic cell transplant or CAR T-cell therapy. Transpl Infect Dis. 2023 Nov;25 Suppl 1(Suppl 1):e14109. doi: 10.1111/tid.14109. Epub 2023 Jul 29. PMID: 37515788; PMCID: PMC10909447.

ACTUALITES : VACCINATION EN HEMATOLOGIE

Practice Guideline

IDSA 2025 Guidelines on the Use of Vaccines for the Prevention of Seasonal COVID-19, Influenza, and RSV Infections in Immunocompromised Patients

Published October 17, 2025 **Last Updated** November 18, 2025

COVID-19 + GRIPPE

Hematologic malignancy	• Optimal timing includes ≥2 weeks before starting treatment and ≥ 3 months after last infusion ○ For B-cell depletion, consider ≥3-6 months after last infusion • If optimal timing not feasible, administer during treatment (blunted immune response likely)
HCT/CAR-T	• Optimal timing includes ≥3 months after transplant or CAR-T treatment ○ For B-cell depletion, consider ≥3-6 months after last infusion • If optimal timing not feasible, administer during treatment (blunted immune response likely)

https://www.idsociety.org/Seasonal-RTI-Vaccinations-in-Immunocompromised-Patients/

ACTUALITES : VACCINATION EN HEMATOLOGIE

Practice Guideline

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Published October 17, 2025 **Last Updated** November 18, 2025

VRS

Hematologic malignancy	• Optimal timing includes ≥2 weeks before starting treatment and ≥ 6 months after last infusion ○ For B-cell depletion, consider ≥6 months after last infusion • If optimal timing not feasible, administer during treatment (blunted immune response likely)
HCT/CAR-T	• Optimal timing includes ≥6 months after transplant or CAR-T treatment ○ For B-cell depletion, consider ≥6 months after last infusion • If optimal timing not feasible, administer during treatment (blunted immune response likely)

https://www.idsociety.org/Seasonal-RTI-Vaccinations-in-Immunocompromised-Patients/

RECOMMANDATIONS VACCINALES

➔ Que faisons-nous aujourd'hui ?

- **immuno-chimiothérapie**
  - Intercure ?
  - 3-6 mois
  - > 6 mois après anti-CD20
- **Allogreffe**
  - A partir de 3 mois
  - A partir de 2 ans pour les VV
- **Autogreffe**
  - >6 mois après auto
- **CAR-T cells**
  - >6 mois

Idéalement avant le traitement
- 2 semaines pour les VI
- 4 semaines pour les VV

POURQUOI ????

DONNEES EN ONCOLOGIE

➔ La grippe

Cancer
An International Interdisciplinary Journal of the American Cancer Society

Original Article | Free Access

Optimal timing of influenza vaccination during 3-week cytotoxic chemotherapy cycles

Bhumsuk Keam MD, PhD, Min-Kyung Kim MD, MPH, Yunhee Choi PhD, Su-Jin Choi MSc, Pyoeng Gyun Choe MD, Kyung-Hun Lee MD, Tae Min Kim MD, PhD ... See all authors

First published: 20 December 2016 | https://doi.org/10.1002/cncr.30468 | Citations: 34

- ✓ 09/2014 – 01/2015
- ✓ Etude monocentrique randomisée
- ✓ N=83
- ✓ Cancer du sein ➔ poumon

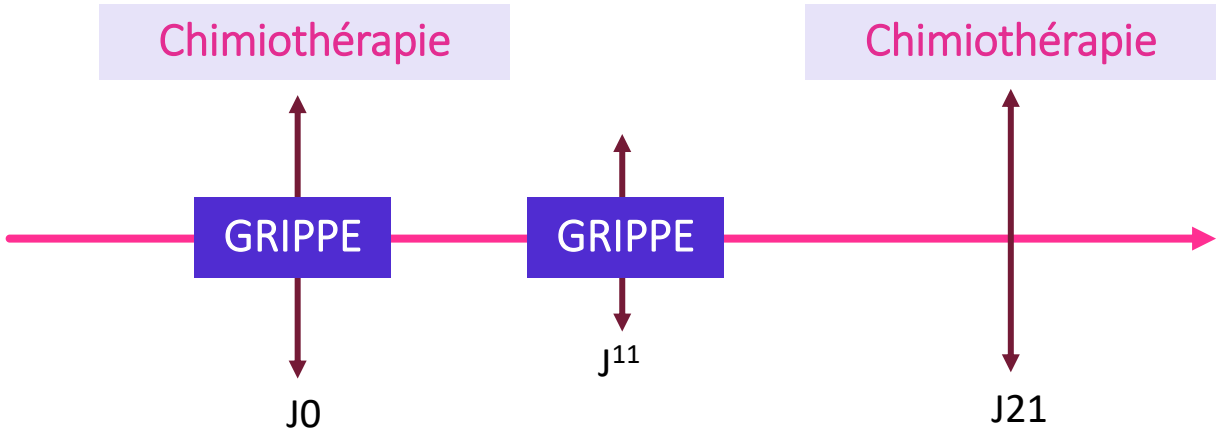


Table 2. Seroprotection and Seroconversion Rates 21 to 28 Days After Vaccination in the Day 1 and Day 11 Groups

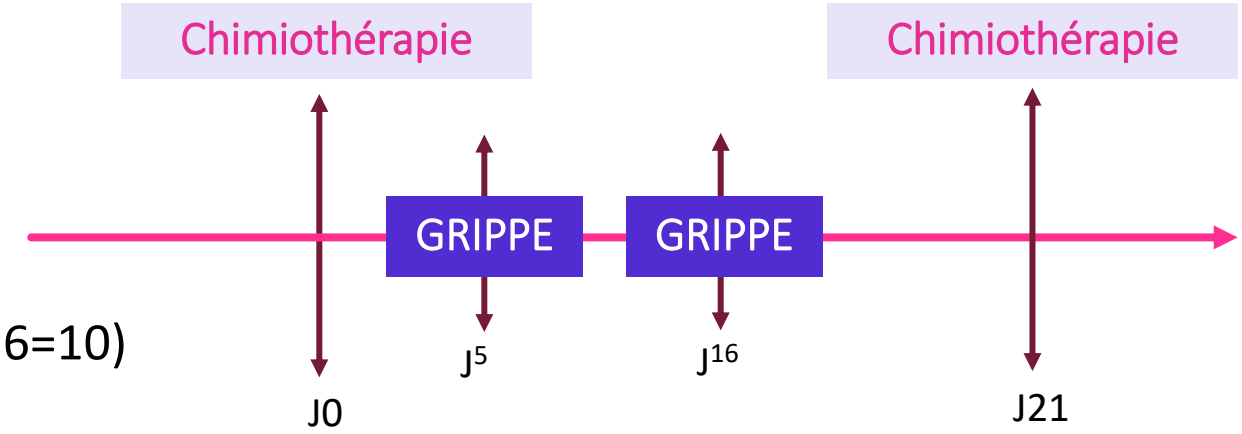
Variable	Strain	Proportion (95% CI)		Difference (95% CI)	*P*
		Day 1 (n = 39)	Day 11 (n = 44)		
Seroprotection	H1N1	67 (52-81)	75 (62-88)	8 (–11 to 27)	.403
	H3N2	77 (64-90)	80 (68-91)	3 (–15 to 20)	.772
	B	21 (8-33)	27 (14-40)	7 (–12 to 24)	.472
Seroconversion	H1N1	41 (26-56)	57 (42-71)	16 (–6 to 35)	.151
	H3N2	44 (28-59)	52 (38-67)	9 (–12 to 29)	.429
	B	10 (1-20)	18 (7-30)	8 (–8 to 23)	.306

Keam B, Kim MK, Choi Y, Choi SJ, Choe PG, Lee KH, Kim TM, Kim TY, Oh DY, Kim DW, Im SA, Kim NJ, Heo DS, Park WB, Oh MD. Optimal timing of influenza vaccination during 3-week cytotoxic chemotherapy cycles. Cancer. 2017 Mar 1;123(5):841-848. doi: 10.1002/cncr.30468. Epub 2016 Dec 20. PMID: 27997703.

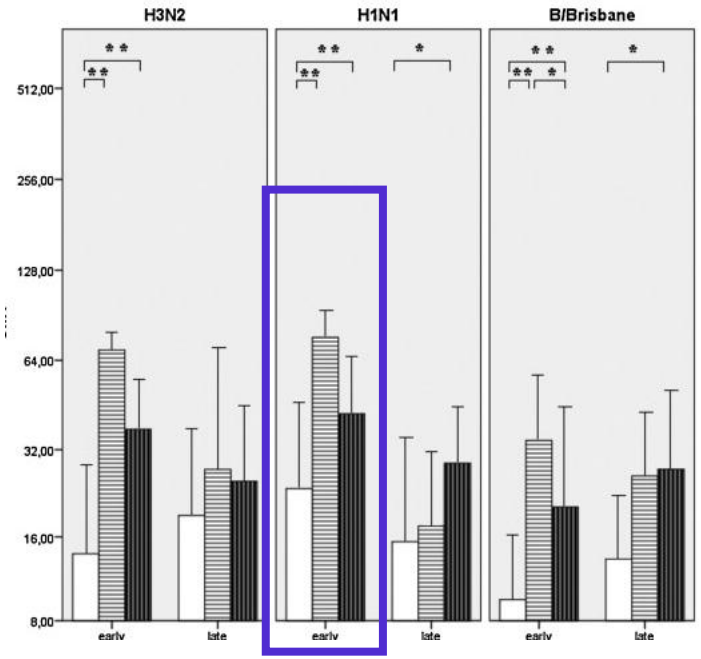
DONNEES EN ONCOLOGIE

➔ La grippe

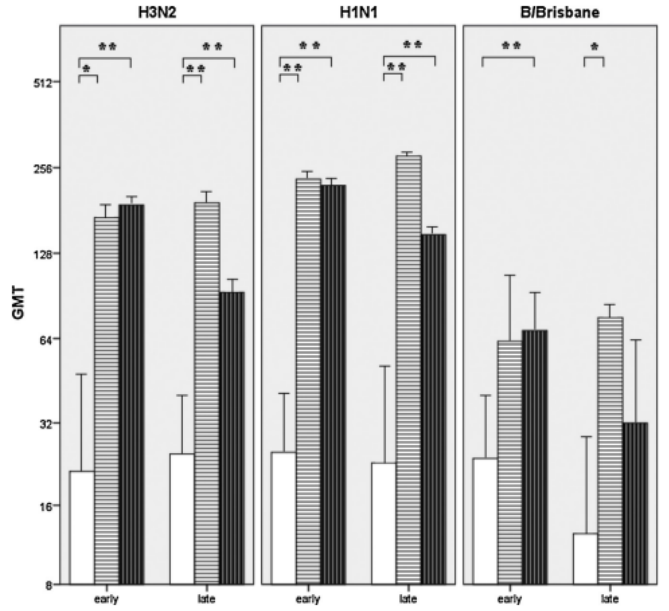
- ✓ 2011-2012
- ✓ Etude multicentrique, randomisée
- ✓ Cancer sein (J5=21 – J16=17) et colorectal (J5=8 – J16=10)



SEIN



COLORECTAL

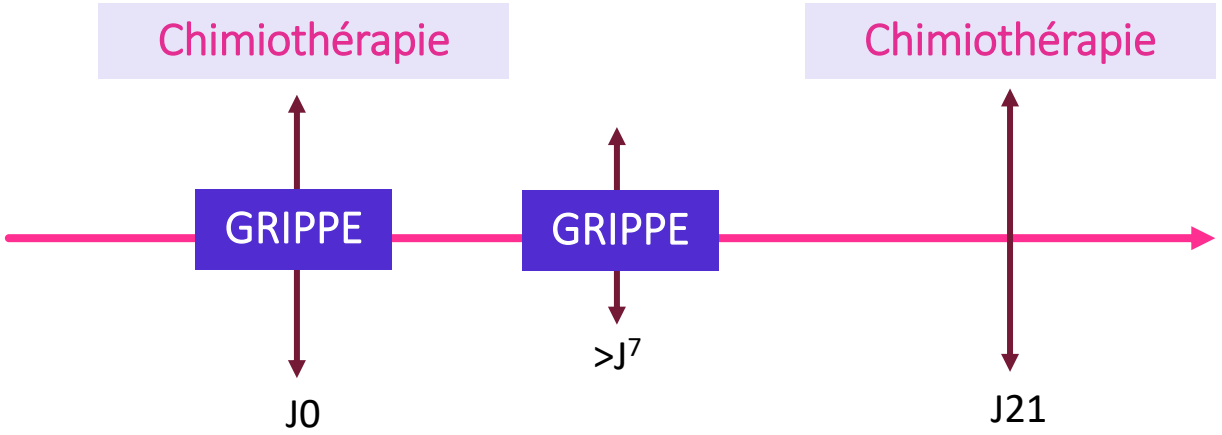


Wumkes ML, van der Velden AM, Los M, Leys MB, Beeker A, Nijziel MR, van der Velden AW, Westerman M, Meerveld-Eggink A, Rimmelzwaan GF, Rijkers GT, Biesma DH. Serum antibody response to influenza virus vaccination during chemotherapy treatment in adult patients with solid tumours. Vaccine. 2013 Dec 16;31(52):6177-84. doi: 10.1016/j.vaccine.2013.10.053. Epub 2013 Oct 29. PMID: 24176495.

DONNEES EN ONCOLOGIE

➔ La grippe

- ✓ 10-12/2006
- ✓ Etude monocentrique prospective
- ✓ Cancer sein colorectal

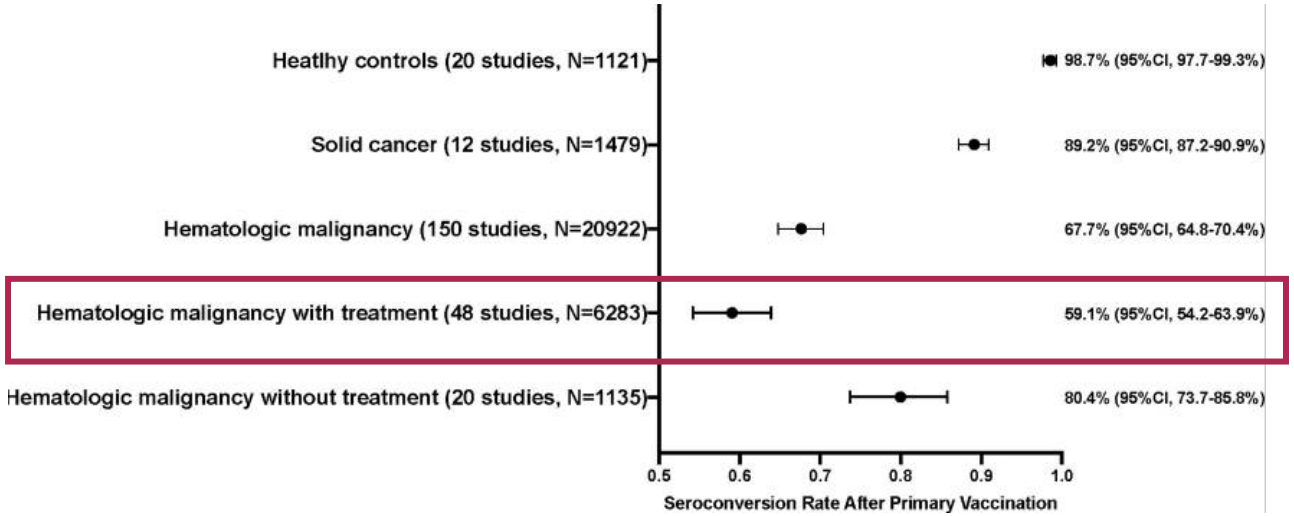


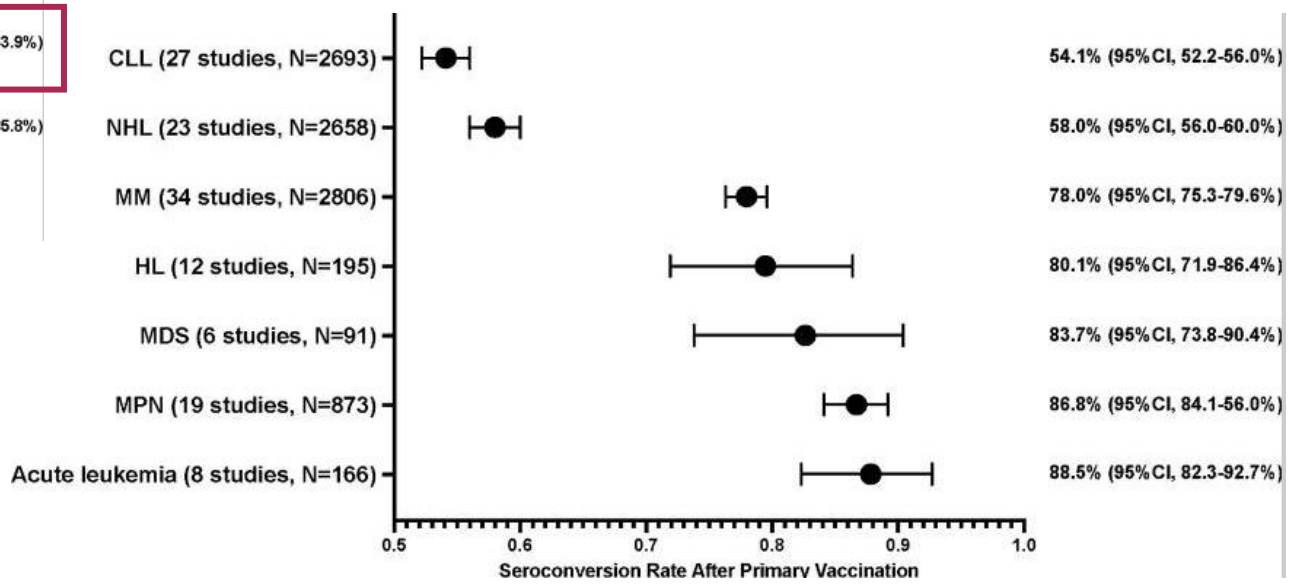
➔ Pas de difference vaccination J versus plus 1 semaine après la chimiothérapie (OR = 0.69; *P* = 0.7)

Puthillath, A., Trump, D.L., Andrews, C. *et al.* Serological immune responses to influenza vaccine in patients with colorectal cancer. *Cancer Chemother Pharmacol* **67**, 111–115 (2011). https://doi.org/10.1007/s00280-010-1292-2

DONNEES D'HEMATOLOGIE

➔ Le COVID-19

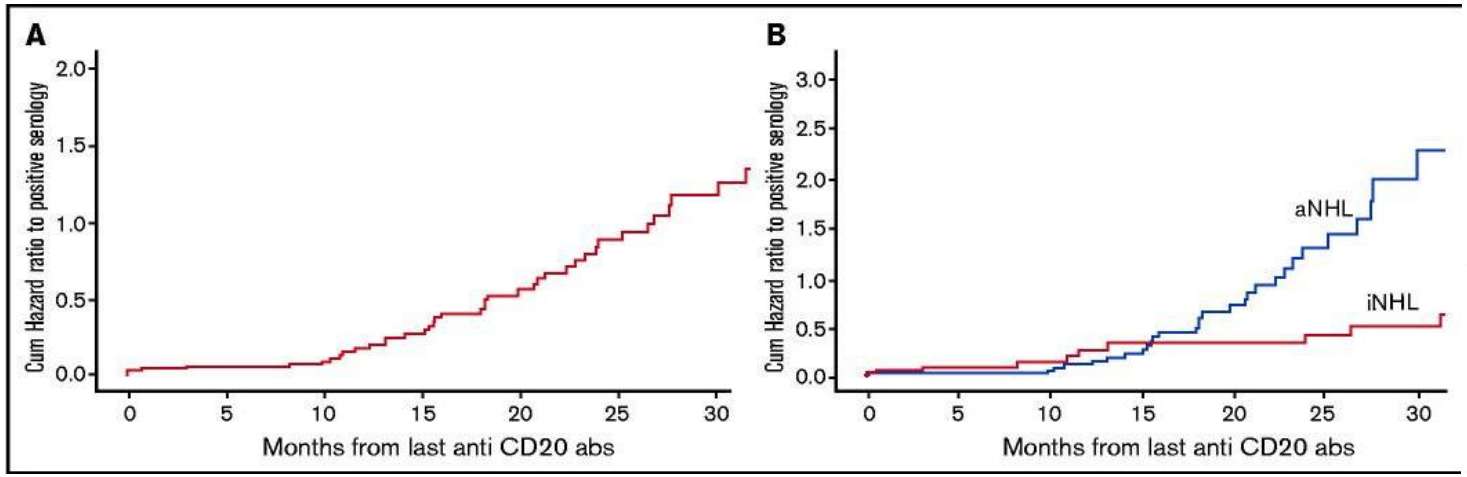




Uaprasert N, Pitakkitnukun P, Tangcheewinsirikul N, Chiasakul T, Rojnuckarin P. Immunogenicity and risks associated with impaired immune responses following SARS-CoV-2 vaccination and booster in hematologic malignancy patients: an updated meta-analysis. Blood Cancer J. 2022 Dec 23;12(12):173. doi: 10.1038/s41408-022-00776-5. PMID: 36550105; PMCID: PMC9780106.

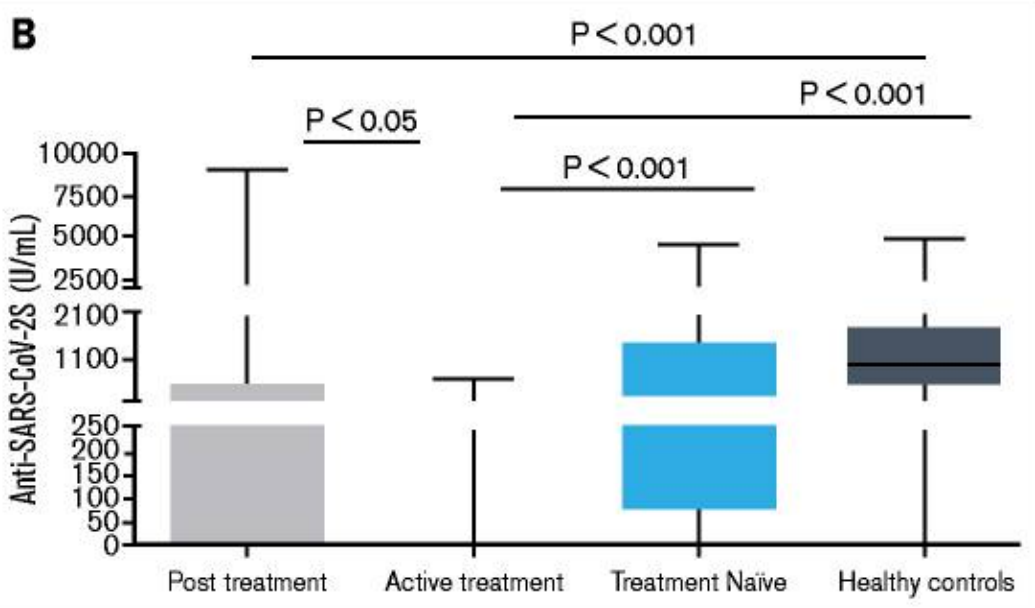
DONNEES D'HEMATOLOGIE

➔ Le COVID-19



Délai median depuis l'anti-CD20 Abs à l'obtention d'une réponse séologique positive = 36 mois patients i-B-NHL and 19.8 mois a-B-NHL (*P* = 0.031)

- ✓ 12/2020 – 03/2021
- ✓ Monocentrique
- ✓ N=73
- ✓ Lymphome non-hodgkin
- ✓ En cours de traitement : vaccination intercure anti-CD20



Perry C, Luttwak E, Balaban R, Shefer G, Morales MM, Aharon A, Tabib Y, Cohen YC, Benyamini N, Beyar-Katz O, Neaman M, Vitkon R, Keren-Khadmy N, Levin M, Herishanu Y, Avivi I. Efficacy of the BNT162b2 mRNA COVID-19 vaccine in patients with B-cell non-Hodgkin lymphoma. Blood Adv. 2021 Aug 24;5(16):3053-3061. doi: 10.1182/bloodadvances.2021005094. PMID: 34387648; PMCID: PMC8362658.

DONNEES D'HEMATOLOGIE

➔ La grippe

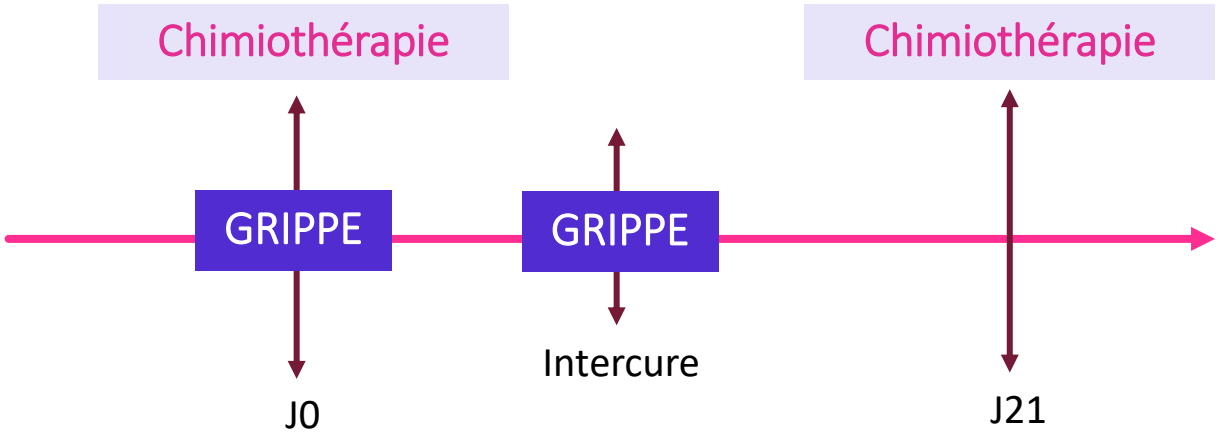
Article | 1 November 1977

Influenza Immunization of Adult Patients with Malignant Diseases

Authors: DAVID W. ORTBALS, M.D., HARVEY LIEBHABER, M.D., CARY A. PRESANT, M.D., F.A.C.P., ALBERT L. VAN AMBURG III, M.D., and JEANETTE Y. LEE, Ph.D. | AUTHOR, ARTICLE, & DISCLOSURE INFORMATION

Publication: Annals of Internal Medicine • Volume 87, Number 5 • https://doi.org/10.7326/0003-4819-87-5-552

- ✓ 21 néoplasmes lymphoréticulaires et 21 patients tumeurs solides
- ✓ vaccin contre le virus grippal A/New Jersey/76 entier et inactivé.



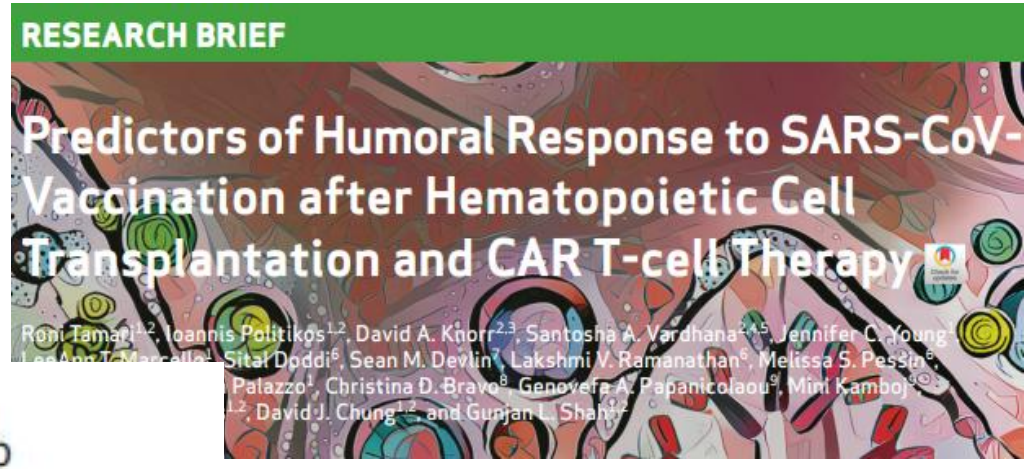
J0 = 50% séroconversion
versus Intercure = 93% séroconversion

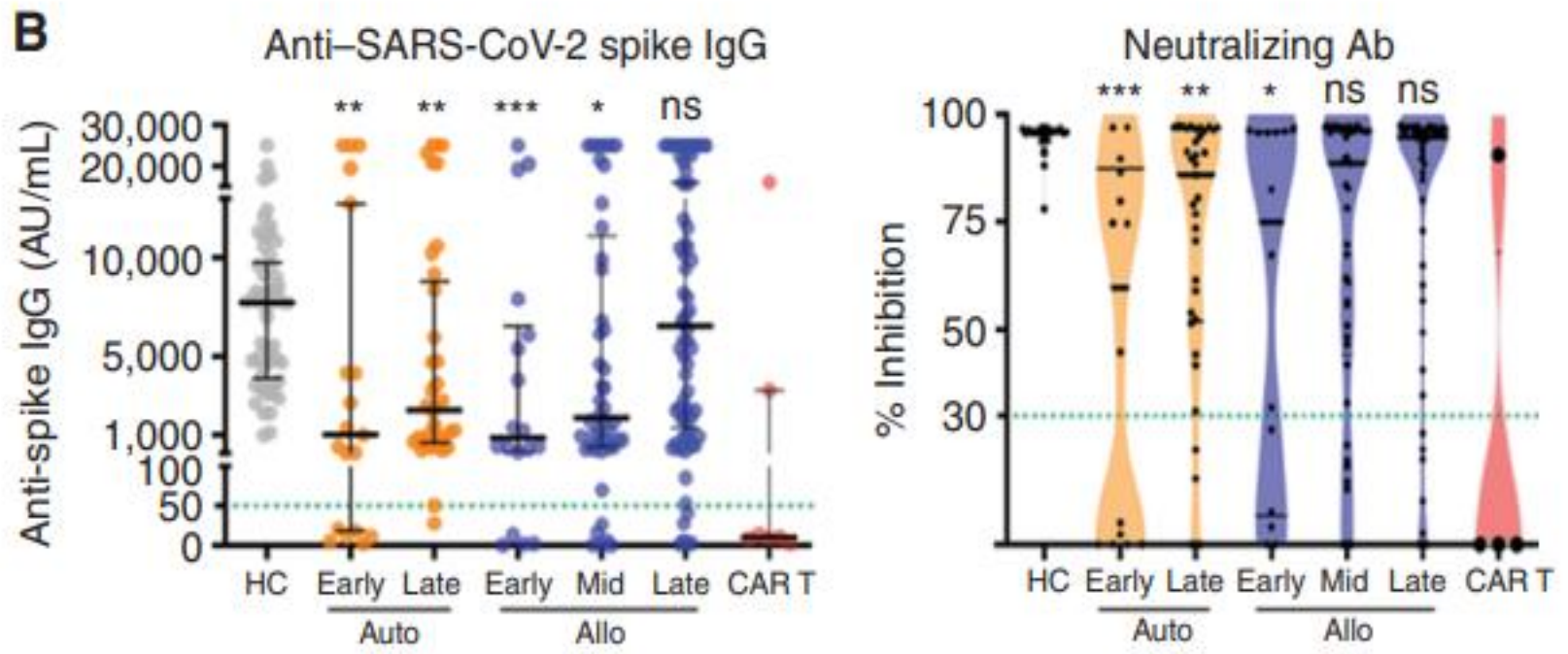
➔ Vaccination pendant l'intercure à privilégier

Ortbals DW, Liebhaber H, Presant CA, Van Amburg AL 3rd, Lee JY. Influenza immunization of adult patients with malignant diseases. Ann Intern Med. 1977 Nov;87(5):552-7. doi: 10.7326/0003-4819-87-5-552. PMID: 921082.

DONNEES D'HEMATOLOGIE

➔ Le COVID-19



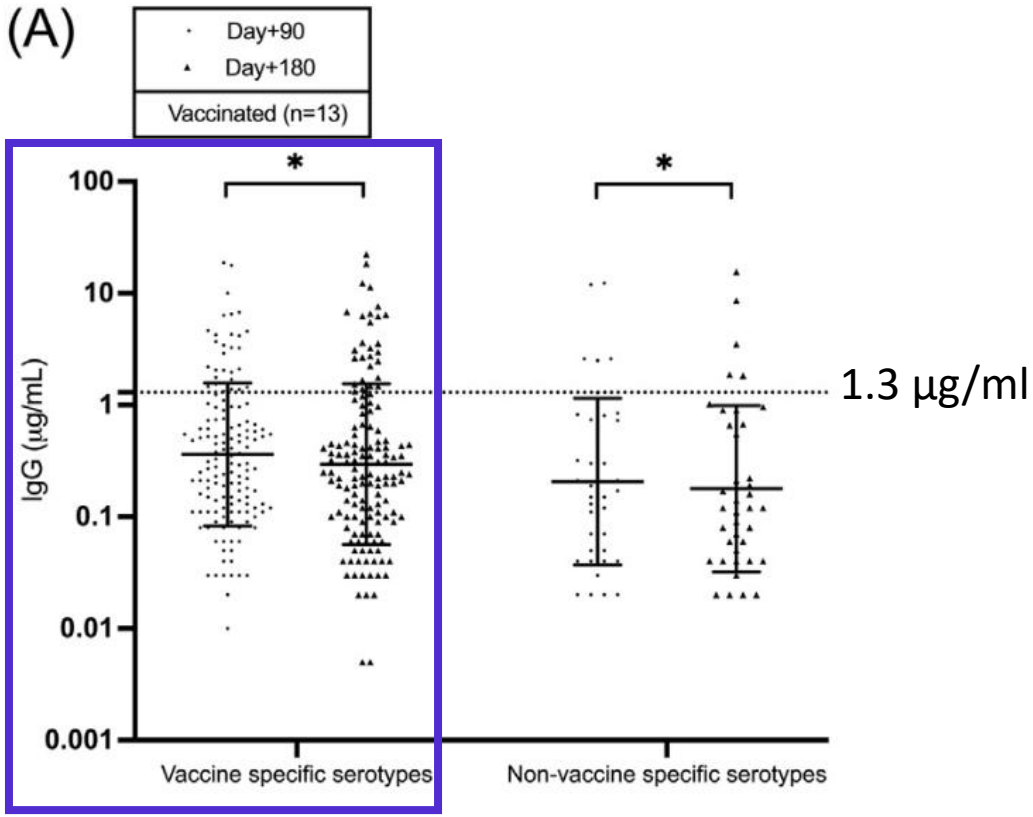


allo-HCT, *n* = 149
auto-HCT, *n* = 61
CAR T-cell therapy, *n* = 7
<1 an versus >1 an

Tamari R, Politikos I, Knorr DA, Vardhana SA, Young JC, Marcello LT, Doddi S, Devlin SM, Ramanathan LV, Pessin MS, Dunn E, Palazzo M, Bravo CD, Papanicolaou GA, Kamboj M, Perales MA, Chung DJ, Shah GL. Predictors of Humoral Response to SARS-CoV-2 Vaccination after Hematopoietic Cell Transplantation and CAR T-cell Therapy. Blood Cancer Discov. 2021 Sep 13;2(6):577-585. doi: 10.1158/2643-3230.BCD-21-0142. PMID: 34778798; PMCID: PMC8580614

DONNEES D'HEMATOLOGIE

➔ Le pneumocoque



1.3 µg/ml

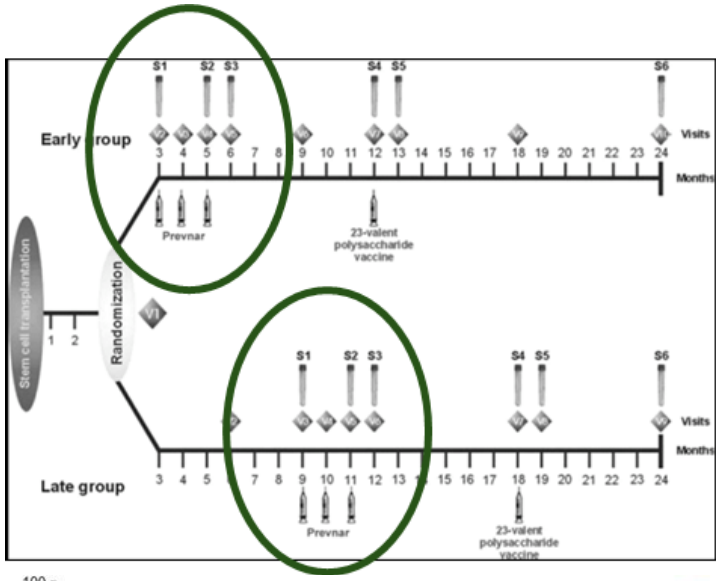
Pneumococcal Conjugate Vaccine Does Not Induce Humoral Response When Administrated Within the Six Months After CD19 CAR T-Cell Therapy

Dasom Lee[1], Aryanna I Jordan[1], Meghan A. Menges[2], Aleksandr Lazaryan[2], Taiga Nishihori[2], Sameh R. Gaballa[3], Bijal D Shah[3], Javier Pinilla-Ibarz[3], Aliyah Baluch[4], Olga V. Klinkova[4], Julio C. Chavez[3], Michael D. Jain[2], Frederick L. Locke[2,*]

Vaccination à 90 jours
N=13

Lee D, Jordan AI, Menges MA, Lazaryan A, Nishihori T, Gaballa SR, Shah BD, Pinilla-Ibarz J, Baluch A, Klinkova OV, Chavez JC, Jain MD, Locke FL. Pneumococcal Conjugate Vaccine Does Not Induce Humoral Response When Administrated Within the Six Months After CD19 CAR T-Cell Therapy. Transplant Cell Ther. 2023 Apr;29(4):277.e1-277.e9. doi: 10.1016/j.jtct.2022.08.011. Epub 2022 Aug 12. PMID: 35970303.

DONNEES D'HEMATOLOGIE



➔ Le pneumocoque

PCV7

Multicentrique randomisée contrôlée, n=158

Seuil ???

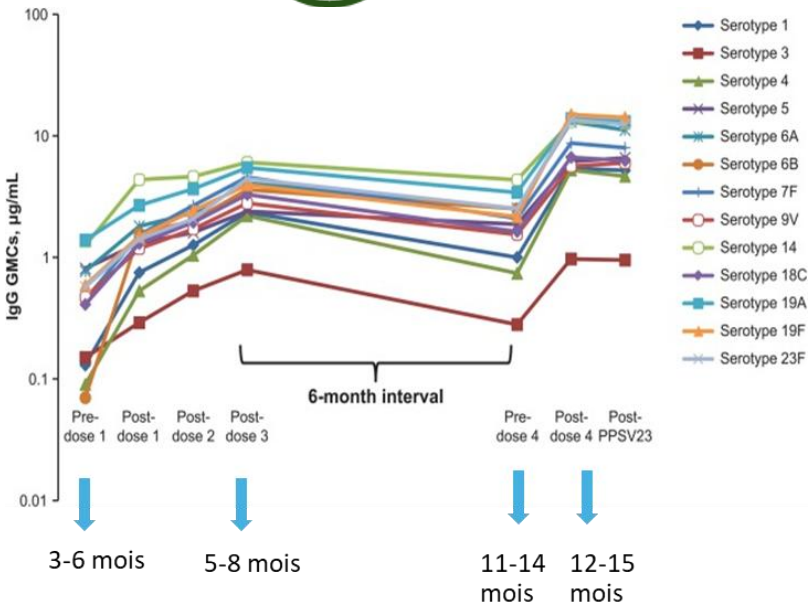
S1 = Baseline
S3 = 1 mois
S6 = 24 mois

Time point	Titer ⩾0.15 μg/mL to all 7 antibodies			Titer ⩾0.5 μg/mL to all 7 antibodies		
	Early vaccination group	Late vaccination group	*P*	Early vaccination group	Late vaccination group	*P*
S1	45 (33/74)	9 (6/64)	<.001	8 (6/74)	2 (1/64)	.08
S3	79 (45/57)	82 (47/57)	.64	56 (32/57)	54 (31/57)	.85[a]
S6	59 (26/44)	83 (35/42)	.013	34 (15/44)	55 (23/42)	.054

NOTE. Data are percentage of patients with response (no. with response/total no. of patients), unless otherwise indicated. S1, baseline (i.e., before vaccination); S3, 1 month after the third dose of PCV7; S6, 24 months after transplantation.

[a] By χ^2 test. See figure 3 for equivalence test.

Cordonnier *et al.,* 2009. CID



➔ non-infériorité 3 vs 9 mois

PCV13

Multicentrique en ouvert, n=216, péd + adulte

Vaccination 3 vs 6 mois

➔ Réponse meilleure après la 4ième dose (M11-14)

➔ Pas d'apport du PPSV23

Cordonnier *et al.,* 2015. CID

DONNEES D'HEMATOLOGIE

PCV7+
PPSV23

➔ Le pneumocoque

Essai EBMT-IDWP01
Séropotection à 10 ans après PCV7x3 (3-6 mois) puis PPSV23/PCV7 (GvH)
n=30 survivant, péd

Table 2. Comparison of the percentage of patients with antibody levels ⩾ 0.15 and ⩾ 0.50 µg/mL at 24 months after transplant and at 8–11 years after

Antibody specificities	*Number of patients (%) with antibody levels ⩾ 0.15 µg/mL*			*Number of patients (%) with antibody levels ⩾ 0.50 µg/mL*		
	24 months after transplant (Time 6 of IDWP01)	*8–11 years after transplant*	*P-value*	*24 months after transplant (Time 6 of IDWP01)*	*8–11 years after transplant*	*P-value*
Against the seven antigens of PCV7	19/24 (70.8%)	19/29[a] (65.5%)	0.68	12/24 (50%)	12/30 (40%)	0.46
Against pn1 and pn5 (PPV23 antigens)	12/24 (50%)	17/27[a] (63%)	0.35	6/24 (25%)	11/28 (36.7%)	0.35
Against the nine antigens	10/17 (58.8%)	14/29[a] (48.3%)	0.49	4/24 (16.7%)	8/30 (26.7%)	0.27

Abbreviations: PCV7 = 7-valent pneumococcal conjugate vaccine; PPV23 = 23-valent pneumococcal polysaccharide vaccine. [a]Data missing.

➔ Meilleure réponse à 10 ans suite à la vaccination tardive (9 mois)

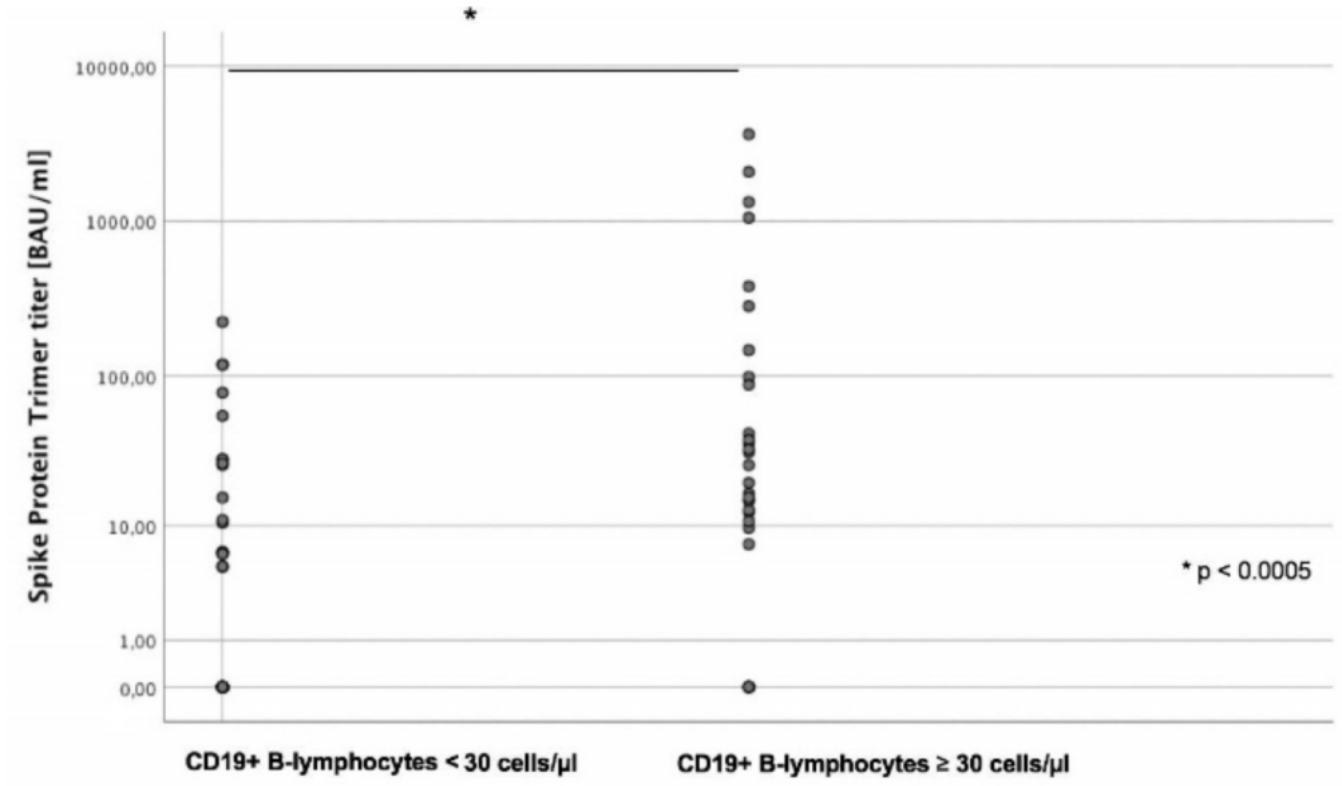
Cordonnier *et al.,* 2015. BMT

COMMENT EST DEFINI LE TIMING ?

- ✓Des recommandations basées sur des preuves discutables
- ✓Peu de preuve ou pas de preuve
- ✓Données scientifiques restant pauvres

COMMENT DEFINIR LE TIMING ?

➔ Le COVID-19



- ✓ Etude monocentrique
- ✓ 01/01 – 21/05/2021
- ✓ Myélome multiple
- ✓ N=82

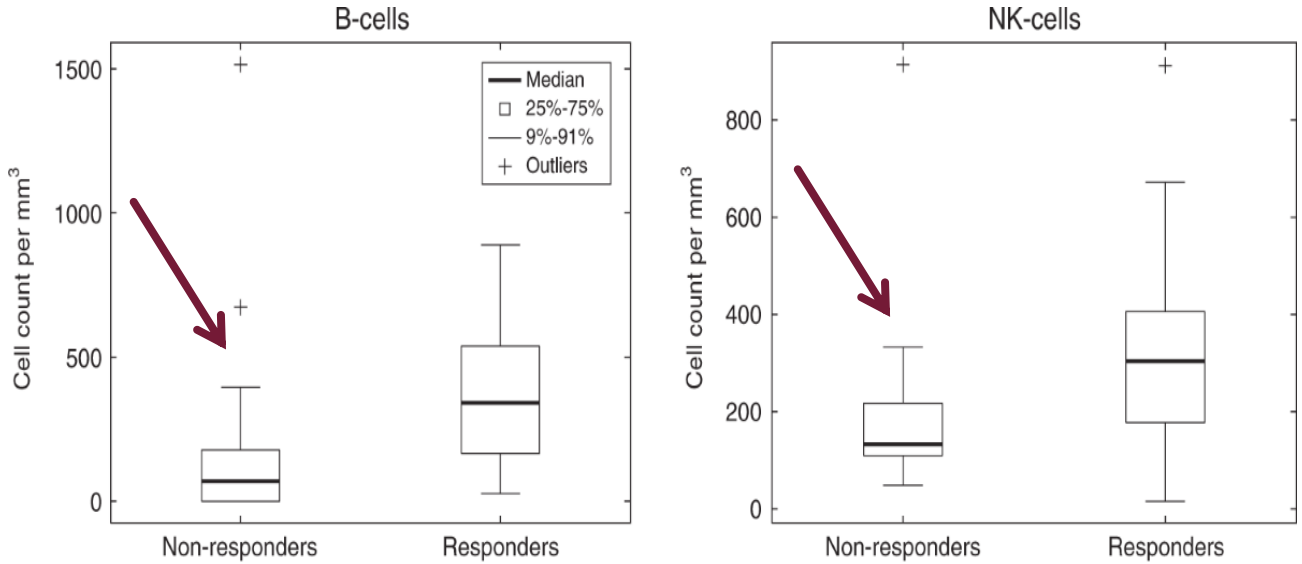
Ghandili S, Schönlein M, Lütgehetmann M, Schulze Zur Wiesch J, Becher H, Bokemeyer C, Sinn M, Weisel KC, Leypoldt LB. Post-Vaccination Anti-SARS-CoV-2-Antibody Response in Patients with Multiple Myeloma Correlates with Low CD19+ B-Lymphocyte Count and Anti-CD38 Treatment. Cancers (Basel). 2021 Jul 28;13(15):3800. doi: 10.3390/cancers13153800. PMID: 34359701; PMCID: PMC8345197.

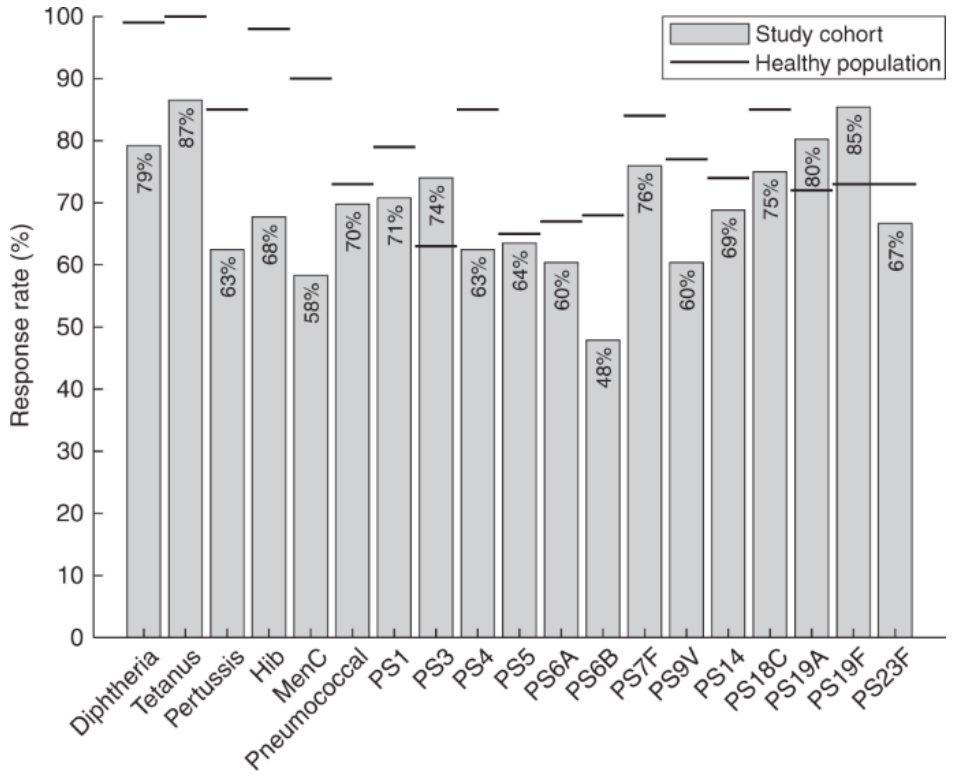
COMMENT DEFINIR LE TIMING ?

- ✓ Rétrospective
- ✓ Evaluation FdR échec vaccination (PCV13, méningoC, DTP, H.ib)
- ✓ Vaccination initiée à 1 an post-allo

➔ **59% des patients : réponse inadéquate**

➔ **Dont 27% pas de réponse**



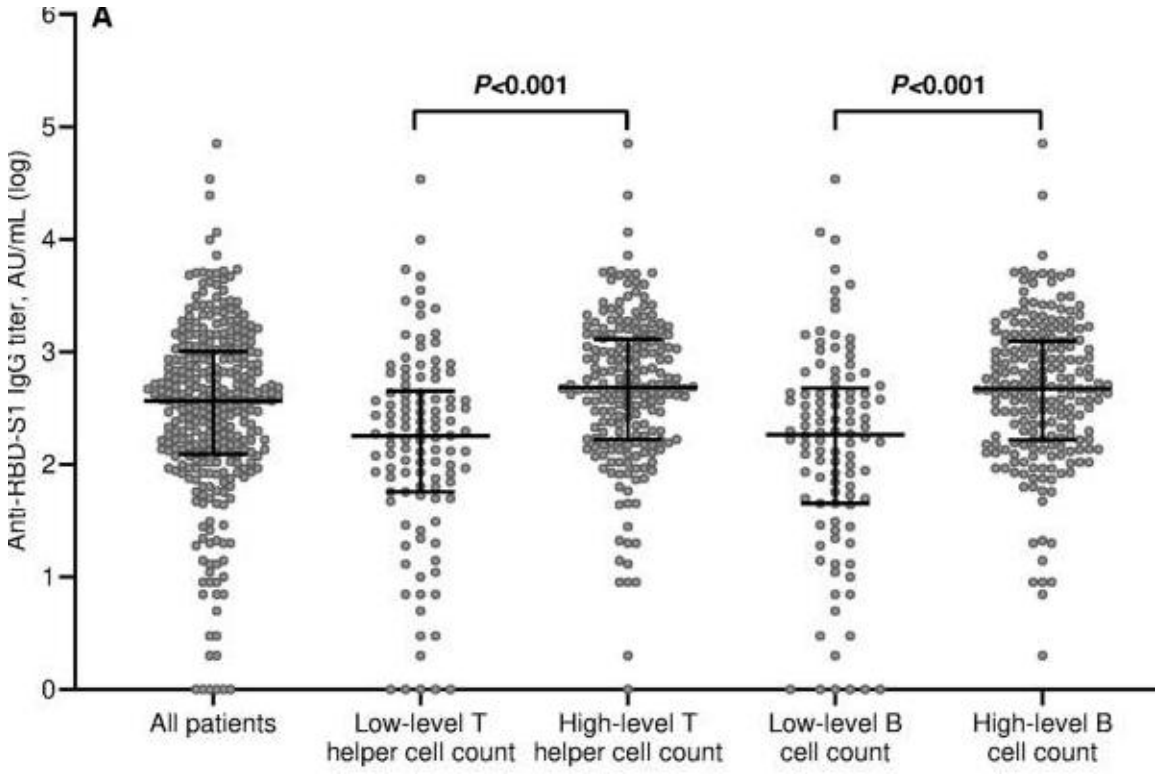


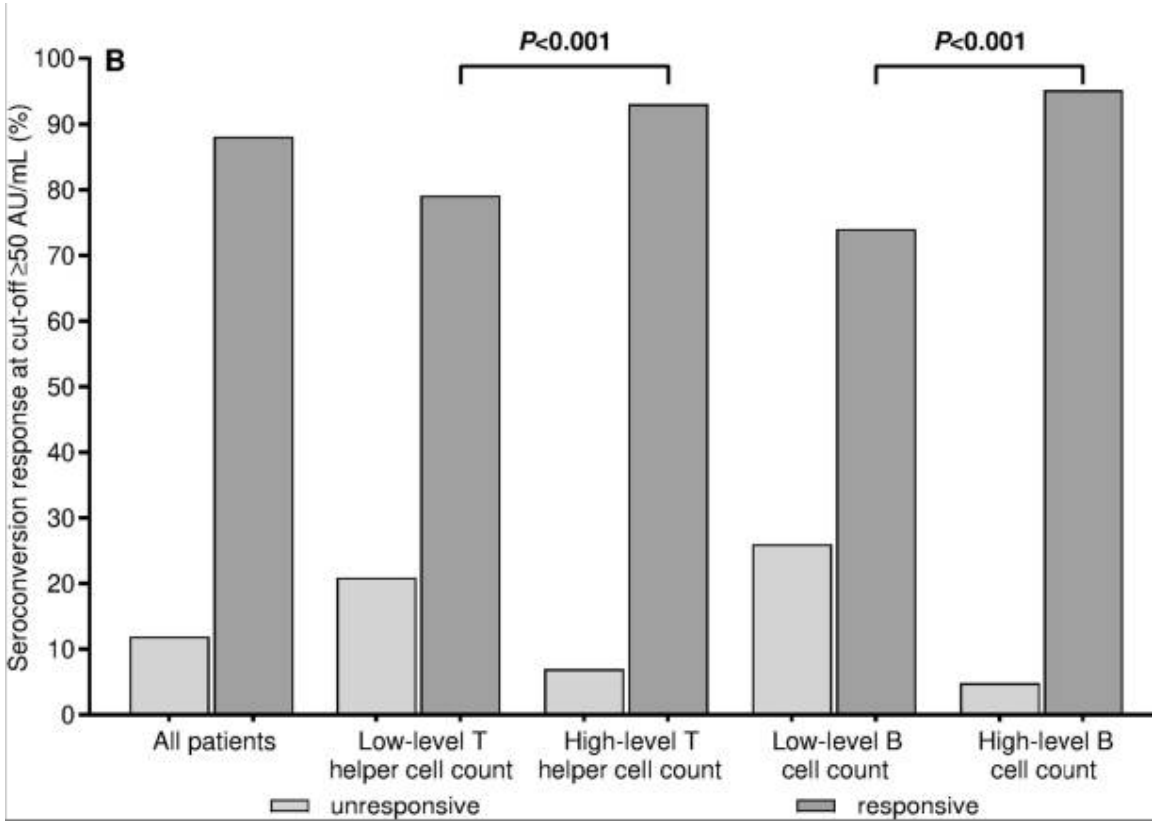
Janssen, M.J.M., Bruns, A.H.W., Verduyn Lunel, F.M. *et al.* Predictive factors for vaccine failure to guide vaccination in allogeneic hematopoietic stem cell transplant recipients. *Bone Marrow Transplant* **56**, 2922–2928 (2021). https://doi.org/10.1038/s41409-021-01437-0

COMMENT DEFINIR LE TIMING ?

➔ Le COVID-19

- ✓ Etude prospective
- ✓ Patient cancer
- ✓ N=311





➔ Impact du nombre de LT et B sur la réponse humoral

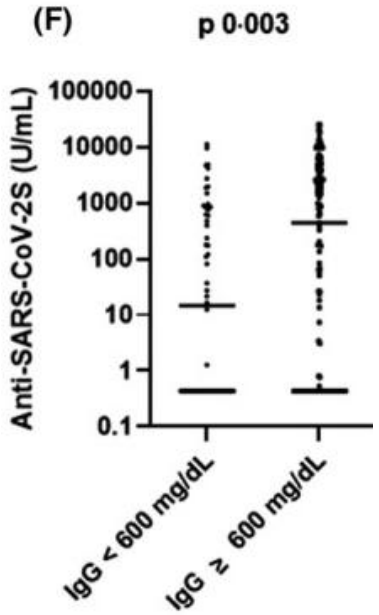
Nelli F, Fabbri A, Panichi V, Giannarelli D, Topini G, Giron Berrios JR, Virtuoso A, Marrucci E, Mazzotta M, Schirripa M, Signorelli C, Chilelli MG, Primi F, Silvestri MA, Ruggeri EM. Peripheral lymphocyte subset counts predict antibody response after SARS-CoV-2 mRNA-BNT162b2 vaccine in cancer patients: Results from the Vax-On-Profile study. Int Immunopharmacol. 2022 Jul;108:108774. doi: 10.1016/j.intimp.2022.108774. Epub 2022 Apr 14. PMID: 35461110; PMCID: PMC9008127.

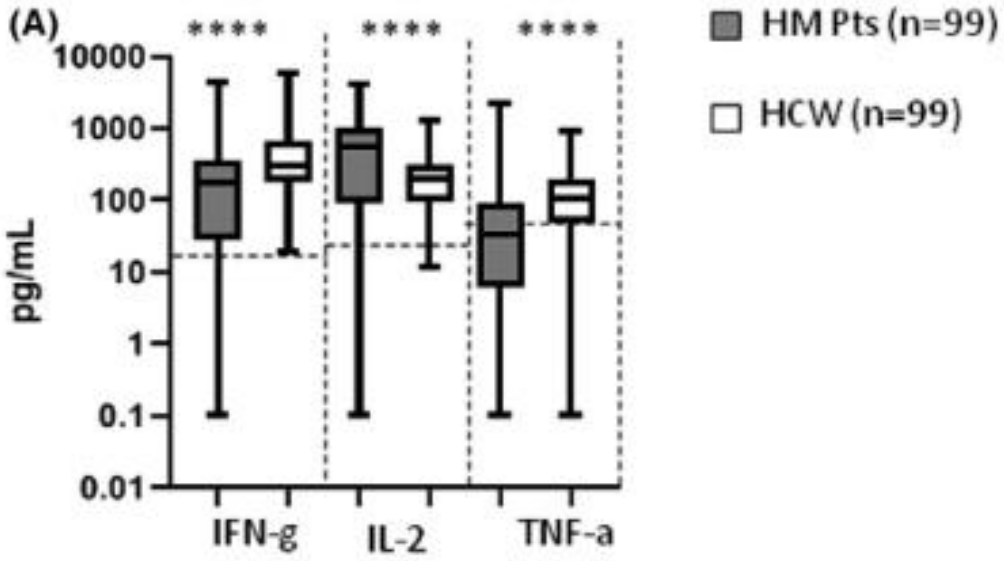
RÉPONSE QUAND MÊME…

bjh research paper

T-cell immune response after mRNA SARS-CoV-2 vaccines is frequently detected also in the absence of seroconversion in patients with lymphoid malignancies

Vincenzo Marasco,[1,*] Cristiana Carniti,[2,*] Anna Guidetti,[1,2] Lucia Farina,[2] Martina Magni,[2] Rosalba Miceli,[3] Ludovica Calabretta,[1] Paolo Verderio,[4] Silva Ljevar,[3] Fabio Serpenti,[1] Daniele Morelli,[5] Giovanni Apolone,[6] Giuseppe Ippolito,[7] Chiara Agrati[8,†] and Paolo Corradini[1,2,†]





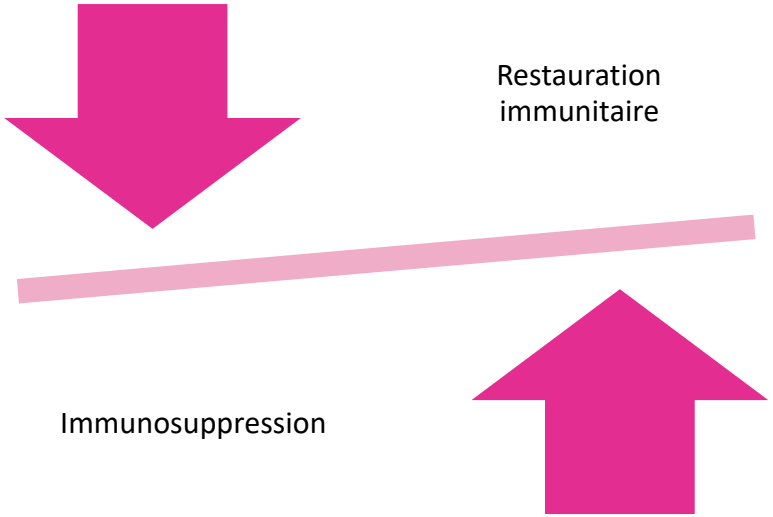
- ✓ Prospective
- ✓ N=263
- ✓ N=99 (réponse cellulaire)

➔ **74% patients séronegatifs avaient une réponse cellulaire T**

Marasco V, Carniti C, Guidetti A, Farina L, Magni M, Miceli R, Calabretta L, Verderio P, Ljevar S, Serpenti F, Morelli D, Apolone G, Ippolito G, Agrati C, Corradini P. T-cell immune response after mRNA SARS-CoV-2 vaccines is frequently detected also in the absence of seroconversion in patients with lymphoid malignancies. Br J Haematol. 2022 Feb;196(3):548-558. doi: 10.1111/bjh.17877. Epub 2021 Oct 14. PMID: 34649298; PMCID: PMC8653177.

QUELS FACTEURS PRENDRE EN COMPTE ?

- Type de vaccin
- Hémopathie sous-jacent
- Régime d'immunosuppression



➔ **Vaccination pendant l'intercure à la sortie d'aplasie**

MERCI DE VOTRE ATTENTION
Votre avis ?

21 Novembre 2025
Docteur SAADE Anastasia

EFFET DES TRAITEMENTS

Anticorps anti-CD20

- Hypogammaglobulinémie
- Hypo/aplasie B
- Neutropénie tardive ?

Inhibiteur tyrosine kinase

- Atteinte de la fonction des LT et LB
- Atteinte des cellules de l'immunité innée (NK)
- IgG4

Inhibiteur BCL-2

- Neutropénie

EFFETS DES TRAITEMENTS

Certains traitements modifient la réponse vaccinale +++