



VACCINS ANTI-INFECTIEUX ET CANCER BRONCHO-PULMONAIRE

1. Généralités

Certaines chimiothérapies et la corticothérapie peuvent induire une déplétion lymphocytaire avec baisse du nombre et de la fonctionnalité des lymphocytes TCD4 et lymphocytes B associé à une baisse des IgM et IgA sans baisse significative des IgG (127). Les lymphocytes se normalisent rapidement, dans les 3 mois suivant l'arrêt de la chimiothérapie tandis que les Ig reviennent à la normale dans les 6 mois.

Cette déplétion lymphocytaire entraîne un risque accru d'infections et particulièrement d'infections sévères dont certaines peuvent être prévenues par des vaccins (pneumocoque et grippe notamment). Cependant, l'immunodépression entraîne également une baisse de l'immunogénicité et donc une diminution de l'efficacité vaccinale. Il est donc important dans la mesure du possible de vacciner les patients avant de débiter la chimiothérapie.

En revanche, **les vaccins vivants sont contre-indiqués** en cours de chimiothérapie ou d'immunothérapie et au moins 6 mois après la fin de la chimiothérapie ou de l'immunothérapie.

2. Vaccins inactivés

Les vaccinations spécifiques recommandées avant de débiter une chimiothérapie sont^{O P} :

- Vaccination antigrippale (par vaccin inactivé) en période épidémique,
- Vaccination anti-pneumococcique.

Il convient de réaliser une sérologie de l'hépatite B (Ag HBs, Ac anti-HBs et antiHBc) afin de dépister les porteurs chroniques et les patients non immuns à risque de contamination pour lesquels la vaccination devra être réalisée dès que possible.

Pour les vaccins du calendrier vaccinal, une dose de rappel doit être administrée 3 à 6 mois après la chimiothérapie.

Concernant la vaccination chez des patients sous immunothérapie, dans une étude retrospective incluant 127 patients traités par nivolumab pour un cancer broncho-pulmonaire, Wijn *et al.* n'ont pas montré de différence de toxicité entre le groupe de patients ayant reçu une vaccination anti-grippal et celui n'ayant pas été vacciné (128). La vaccination (par vaccins inactivés) n'est à ce jour pas contre-indiquée.

^O Recommandation HCSP - dec 2014 -vaccination des personnes immunodéprimées ou asplénique

^P Calendrier vaccinal 2018 disponible sur https://solidarites-sante.gouv.fr/IMG/pdf/calendrier_vaccinations_2018.pdf (consulté le 02.01.2019).



Soins de support et nutrition

Vaccins	Avant et pendant chimiothérapie	Post-chimiothérapie
Grippe saisonnière (vaccin inactivé)	Recommandé à l'automne et en période épidémique	1 injection annuelle à l'automne et en période épidémique
Pneumocoque	Si patient non vacciné au préalable : - 1 dose de vaccin conjugué 13-valent (Prevenar 13®) - Puis au moins 2 mois après : 1 dose de vaccin polysidique non conjugué 23-valent (Pneumovax®)	3 mois après chimiothérapie, si patient à risque de récurrence ou à risque d'infection à pneumocoque : - 1 dose de vaccin polysidique 23-valent (Pneumovax®) [§]
Diphtérie Tétanos Poliomyélite Coqueluche	Pas d'indication	3 mois après chimiothérapie: - 1 injection de vaccin combiné DTP-coqueluche acellulaire
Hépatite B	Sérologie (Ag HBs, Ac anti-HBs et anti-HBc) systématique Si patient non immun* et à risque d'infection [¶] : - Vaccination et contrôle titre Ac à 4 semaines	A 6 mois post-chimiothérapie : injection de rappel dans la population à risque [¶]

[§]Si vaccination préalable. Si pas de vaccination préalable : faire schéma à deux injections comme recommandé avant chimiothérapie

*Non immun = Ag HBs négatif, Ac anti-HBs et anti-HBc négatifs

[¶]Population à risque : détenu, partenaires sexuels multiples, usager de drogue, voyageur (ou résident) en zone de forte ou moyenne endémie, professions à risque d'exposition aux liquides biologiques, patient susceptible d'être transfusé à de multiples reprises.

Tableau 29 – Recommandations de vaccination par vaccins inactivés chez les patients recevant une chimiothérapie



3. Vaccins vivants

Les vaccins vivants sont contre-indiqués en cours de chimiothérapie ou d'immunothérapie et au moins 6 mois après la fin de la chimiothérapie ou de l'immunothérapie.

VACCINATION	Prise en charge en cas de CONTAGE	Recommandations pour l'ENTOURAGE	
BCG	Non recommandée, quel que soit le délai	Prise en charge d'une infection tuberculeuse latente	Selon les recommandations en population générale
Rougeole Oreillon Rubéole	Après un délai de 6 mois post-chimio chez les adultes nés après 1980 : Si vaccination complète préalable : 1 dose Sinon : 2 doses séparés d'au moins un mois	Contage rougeole : Ig polyvalentes IV ; à discuter en fonction du niveau d'immunosuppression.	Vaccination chez sujets n'ayant pas reçu un schéma vaccinal complet (si rash post-vaccinal : éviter contact)
Varicelle	Après un délai de 1 an post-chimio chez sujets non immuns à risque de rechute	Contage varicelle ou zona : Ig spécifiques ; à discuter en fonction du niveau d'immunosuppression.	Vaccination chez sujets non immuns (si rash post-vaccinal : éviter contact)
Fièvre jaune	Contre-indiquée pendant 6 mois post chimio		
Rotavirus	Non recommandée Contre-indiquée jusqu'à 6 mois post-chimio		Vaccination contre-indiquée pendant la CT et dans les 6 mois suivant
Grippe saisonnière par vaccin vivant atténué (Fluenz®)	Contre-indiquée jusqu'à 6 mois post-chimio		Vaccination contre-indiquée pendant 6 mois

Tableau 30 – Recommandations de vaccination par vaccins vivants chez les patients recevant une chimiothérapie et leur entourage et conduite à tenir en cas de contage

4. Calendrier vaccinal avant traitement anti cancéreux

Les données de la littérature ne sont pas concordantes sur le moment idéal pour vacciner les patients. Les experts estiment qu'il est préférable de vacciner les patients au plus tôt avant la chimiothérapie, idéalement 10 jours avant le début de la chimiothérapie, voire le premier jour de celle-ci. En cas de chimiothérapie pendant la période épidémique grippale, la vaccination anti-grippale est à faire entre deux chimiothérapies, en dehors de la période de nadir.

Recommandation

- Les vaccins spécifiquement recommandés sont :
 - Vaccination antigrippale inactivée annuelle en période épidémique
 - Vaccination anti-pneumococcique.
- Les vaccins recommandés doivent être effectués au plus tôt avant le traitement anticancéreux bien qu'il soit possible de vacciner jusqu'au 1^{er} jour de la chimiothérapie.
- Les vaccins vivants sont contre-indiqués au cours de la chimiothérapie ou de l'immunothérapie et dans les 6 mois suivant l'arrêt.
- Un rappel des vaccins du calendrier vaccinal (DTP uniquement hors cas particulier) doit être fait 3 à 6 mois après l'arrêt de la chimiothérapie.



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DECLARATION DES LIENS D'INTERETS

Les personnes ci-dessous ont déclaré des liens d'intérêt en oncologie thoracique pour des participations à des congrès, séminaires ou formations ; des bourses ou autre financement ; des rémunérations personnelles ; des intéressements ; ou tout autre lien pertinent dans les 3 dernières années :

ARPIN D : Takeda, Roche
 AUDIGIER-VALETTE C : Roche, Abbvie, BMS, MSD, Takeda, Boehringer, AstraZeneca, Pfizer, Novartis, Fabre, Amgen, Lilly
 AVRILLON V : BMS, Abbvie.
 BARANZELLI A. : Roche, Takeda, BMS, MSD
 BAUD M. : Boehringer
 BAYCE BLEUEZ S. : Roche, BMS, AMGEN
 BERARD H : Roche, Pfizer, Boehringer
 BERNARDI M. : BMS, Sandoz, Roche
 BOMBARON P : Roche, AstraZeneca, BMS, Boehringer.
 COURAUD S. : AstraZeneca, Boehringer Ingelheim, Lilly, Merck, MSD, Novartis, Pfizer, Roche, Sysmex Innostics, Chugai, Laidet.
 DELCLAUX B : BMS, Boehringer, AstraZeneca, Novartis, Roche.
 DEMIR S : Pfizer, BMS
 FALCHERO L. : Roche, Boehringer, AstraZeneca, BMS, Pfizer, Amgen.
 FOUCHER P : AstraZeneca, Roche, BMS, MSD, Chugai, Vifor, IFCT, PFIZER
 FOURNEL P. : Lilly, Amgen, BMS, MSD, Roche, Pfizer, Astellas, Boehringer, AstraZeneca, Takeda, Novartis, PFO
 GERINIERE L : Lilly
 GIAJ LEVRA M. : MSD, BMS, Roche, AstraZeneca, Novartis, Pfizer, Boehringer
 GONZALEZ G. : Roche, Novartis, Pharmadom
 GOUNANT V : Takeda, Lilly, Roche, AstraZeneca, BMS, Boehringer, Pfizer, Novartis.
 GROUET A. : Boehringer, Novartis
 HAMMOU Y : Chiesi, ISIS, Elia
 JACOULET P : Boehringer
 JANICOT H. Boehringer
 LARIVE S. : TEVA Santé, Pfizer, Boehringer, BMS, MSD, AstraZeneca.
 LE TREUT J. : AstraZeneca, Boehringer, Roche, BMS, MSD
 LOCATELLI SANCHEZ M. : Boehringer, BMS, AstraZeneca, LFB
 LUCIANI S : Pfizer
 MARTIN E. : Astra Zeneca
 MASTROIANNI B : Amgen
 MERLE P : MSD, AstraZeneca, BMS, Pfizer
 MORO-SIBILOT D : Roche, Pfizer, Lilly, Boehringer, MSD, BMS, Takeda, AstraZeneca, Novartis, Amgen, Abbvie
 NAKAD A : BMS
 ODIER L. : Lilly, Amgen, Pfizer
 PAULUS V : MSD, Roche
 PEROL M. : Roche, AstraZeneca, Boehringer, Lilly, Takeda, BMS, MSD, Pfizer, Novartis, Chugai
 PERROT E. : AstraZeneca
 PINSOLLE J. : Takeda, MSD, Roche, Pfizer, Agiradom.
 RANCHON F : CELGENE, JAZZPHORNA
 SAKHRI L : Pfizer, BMS.
 SOUQUET P.-J. : Amgen, AstraZeneca, BI, CHUGAI, P FABRE, LILLY, MSD, BMS, Pfizer, Novartis, Sandoz, Roche, Takeda, Bayer, Merrimack, Merck, Astellas,
 TAVIOT B : Chiesi
 TISSOT C : Amgen, Sandoz, BMS
 WATKIN E. : MSD, AstraZeneca, Boehringer, Pfizer, Roche, BMS
 ZALCMAN G. : Roche, AstraZeneca, BMS, Pfizer, Novartis, Abbvie, MSD, Boehringer, GSK, Inventiva

Les autres participants et membres des groupes de travail n'ont déclaré aucun lien d'intérêt en oncologie thoracique.
Aucun participant ou membre d'un groupe de travail n'a rapporté de lien d'intérêt avec l'industrie du tabac.



MENTIONS LEGALES

La réunion de mise à jour des référentiels (édition 2019) a été organisée par l'Association de Recherche d'Information Scientifique et Thérapeutique en Oncologie Thoracique (ARISTOT).

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