

Idiopathic Thrombocytopenic Purpura following BNT162b2 vaccine injections : about 2 cases.

Author

JPSantourian MD

jeanfiwhip@live.fr

Abstract

Among the multiple and rare complications observed during the following of anti-covid vaccinations, thrombopenia with or without thrombotic complications have been reported by the drug surveillance agency as well as by scientific publications.

We present here two cases of thrombopenia without vital thrombotic or hemorrhagic complications, which are under lifetime surveillance.

Introduction

Since one year and a half, new anti-covid vaccine have appeared, from which side effects have been reported, in France, by the Drug National Security Agency, and in the rest of the world, by both similar agency, but also by statistical studies or case report.

There are frequent symptomes, after the injection, represented by fatigue, headache, fever and myalgias, sometimes lasting many days, and ther are also side endocrinologic side effetcs.¹

Among those last, we found diabetic inbalances, thryoidic troubles² ;³, as well as adrenal troubles, about which certain cases of acute adrenal insufficiency⁴ ;⁵.

There are also thrombopenic cases, with or without thrombosis, sometimes severe, and often rarely, fatal.

In Hematologic followed-up PTI patients in a Boston's Hospital, about 12 % of the sample on which blood tests are made in order to appreciate the platelet levels before and after the injection, have developped worsening of their initial thrombopenia and their bleeding symptoms, during the week following ARNm injection.

This data encourage the Medical Praticians to hesitate on an adding dose⁶.

A germanic study reports a thrombotic thrombopenia in an adult, 8 days following the injection of recombinant adenovirus vaccine. This trhombosis occurs in a severe adrenal hemorrhagic context, leading to an acute adrenal insufficiency, double legs thrombosis and pulmonary thrombosis in a 39year-old smoking patient, without comorbidity.⁷

1 Menni et al., « Vaccine Side-Effects and SARS-CoV-2 Infection after Vaccination in Users of the COVID Symptom Study App in the UK ».

2 Capezzone et al., « Silent Thyroiditis Following Vaccination against COVID-19 ».

3 İremli, Şendur, et Ünlütürk, « Three Cases of Subacute Thyroiditis Following SARS-CoV-2 Vaccine ».

4 Murvelashvili et Tessnow, « A Case of Hypophysitis Following Immunization With the MRNA-1273 SARS-CoV-2 Vaccine ».

5 Morita et al., « Isolated ACTH Deficiency Following Immunization with the BNT162b2 SARS-CoV-2 Vaccine ».

6 Kuter, « Exacerbation of Immune Thrombocytopenia Following COVID-19 Vaccination ».

7 Tews et al., « SARS-CoV-2 Vaccine-Induced Immune Thrombotic Thrombocytopenia with Venous Thrombosis, Pulmonary Embolism, and Adrenal Haemorrhage ».

It participates of auto-immunisation with auto-antibody PF4 synthesis (anti platelet factor : The VITT : Vaccine Induced Thrombotic Thrombocytopenia.

This nosography is also found with ARNm injections :

During 2021 January, a doctor died following ARNm injection by cerebral hemorrhagia, and 31 cases of patients hospitalized in the course of external bleeding until 23 days after the injections are part of investigations and arises questions : wouldn't it be careful to provide platelet blood tests in known PTI patients, before and after the vaccination ?

Wouldn't it be careful, in case of PTI following injection, to consider another type of anti-covid vaccine ?⁸

Another paper in 2021 June reports another case : a 65 year-old man, developing, 10 days after his second ARNm injection, a VITT with seriously thrombo embolic complications, leading to his death.⁹

In 2021 January, is reported a PTI case in Wisconsin, about a 22 year-old man, without comorbidity, following an ARNm injection, with arising Goujerot Sjögren Auto antibody, returning to basal levels in the 34 days following hospitalisation.¹⁰

In 2021 August, 2 cerebral venous thrombosis in 47 year-old and 67 year-old patients are reported following ARNm injections, without dropping platelet counts.¹¹

Another case of PTI or PTAI is reported, in the early 2021 year, occurring in a 36 year-old woman, with known PTI, which will develop mouth, truncal and members petechiae, with worsening platelet counts at 3000/ μ l. An IV corticoid and Immunoglobulines treatment is initiated with platelet recovery at 28 000/ μ l in the 3 following days.¹²

Case Presentation :

First case :

35 year old female patient, with no co-morbidities, she notes a tendency to make bruises more easily and more often.

She consults her gynecologist, which order a blood test and takes the IUD off, and directs her to the hospital emergency, for her platelet level is at 21G/l.

She is hospitalized.

A blood test is made. The immune status shows Auto Antibodies at 80UI/l, which is a level found, depending on authors, in about 13,3 % of the general population. This level is probably underestimated regarding the ACAN increasing level in the general population during the last decade.

Considering no cause found except immune cause, and the platelet level inferior to 100G/l, PTI is diagnosed.

A corticotherapy at prednisone 50mg is started during 15 days, then stopped. The patient presents dental retraction during this period, feels euphoric, and feels a kind of swelling left hypocondre.

8 Lee et al., « SARS-CoV-2 Vaccination and ITP in Patients with de Novo or Preexisting ITP ».

9 Sangli et al., « Thrombosis With Thrombocytopenia After the Messenger RNA-1273 Vaccine ».

10 Tarawneh et Tarawneh, « Immune Thrombocytopenia in a 22-Year-Old Post Covid-19 Vaccine ».

11 Dias et al., « Cerebral Venous Thrombosis after BNT162b2 MRNA SARS-CoV-2 Vaccine ».

12 Toom et al., « Familial Thrombocytopenia Flare-up Following the First Dose of MRNA-1273 Covid-19 Vaccine ».

When physical examination, we note a little splenomegaly at the left hypocondre.
The echography, realised one week later, won't notice it.
She stops corticotherapy, the platelet level drops to 67, then to 65, then stabilizes

Second case :

50 year old male patient, high level sportsman, with known idiopathic thrombopenia for 5 years. His platelet level oscillate in between 100 to 113 G/l before the covid vaccination and before a first covid infection in June 2021. Thanks to vaccination, he's re-infected by covid in January 2022, and then in April 2022.

His platelet level drops to 96 G/l. The immunitary blood test shows ACAN at 400 U/l, level which is not found, according to certain authors, in the average population, signing here a auto-immunity pathology, not contextual of the relative rising of the average population's ACAN occurring in the last decade.

A phytotherapy and homeopathic treatment is settled down. We complete by nutritherapy already started by the patient himself, which had the habit of nutriment supplementation due to his high level as a sport athlete.

The platelet level oscillates in between 89 and 107 one month later, in the course of a probable CMV re-activation period.

Discussion

The first clinical case is very suggestive of a PTAI. Because of his progressive appearing, following the third vaccine BNT162b2 injection, it is about a PTAI post-vaccination diagnosis. The exact dose of the injection remains unknown.

The BNT162b2 mass vaccination studies on large samples in 2021 does not show any thrombopenia occurrence¹³, nevertheless they do not mention having made practicing blood test in order to evaluate it.¹⁴

A priori, in this clinical case, there is no thrombosis associated to the thrombopenia, which excludes the VITT diagnosis. Nevertheless, the FP4 dosage has not been made.

The second clinical case is also evocative of PTAI, with an auto-immunity more evocative regarding the ACAN title blood.

Because of a pre-existing thrombopenia prior to the vaccination, its participation in its genesis is from little probability.

What about auto-immunity ? Is it a vaccination direct consequence or was it a condition existing prior the vaccination, we can not slice.

13 Dagan et al., « BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting ».

14 Polack et al., « Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine ».

Conclusion

Regarding the chronic thrombopenia morbidity impact on a patient daily basis, with the vital risk that can lead unexpected bleeding, as well as the thrombotic complications rarely fatal following experimental covid vaccine, and regarding the thrombopenia prevalence in general population, it seems desirable to consider a blood test before and after the vaccination in known PTI patients, in order to secure the injection and to avoid iatrogenic issue.

Regarding sometimes fatal complications about thrombopenia following vaccination in general population, it seems desirable to practise at least a platelet count blood test in everybody, before the injection.

The worsening of a known thrombopenia, or the appearance of a thrombopenia after the gesture could be the subject of a potential contraindication to a supplementary dose.

Bibliography

- Capezzone, M., M. Tosti-Balducci, E. M. Morabito, G. P. Caldarelli, A. Sagnella, S. Cantara, M. Alessandri, et M. G. Castagna. « Silent Thyroiditis Following Vaccination against COVID-19: Report of Two Cases ». *Journal of Endocrinological Investigation* 45, n° 5 (mai 2022): 1079-83. <https://doi.org/10.1007/s40618-021-01725-y>.
- Dagan, Noa, Noam Barda, Eldad Kepten, Oren Miron, Shay Perchik, Mark A. Katz, Miguel A. Hernán, Marc Lipsitch, Ben Reis, et Ran D. Balicer. « BNT162b2 mRNA Covid-19 Vaccine in a Nationwide Mass Vaccination Setting ». *The New England Journal of Medicine* 384, n° 15 (15 avril 2021): 1412-23. <https://doi.org/10.1056/NEJMoa2101765>.
- Dias, Leonor, Ricardo Soares-Dos-Reis, João Meira, Diana Ferrão, Pedro Ribeirinho Soares, Ana Pastor, Guilherme Gama, Luísa Fonseca, Vítor Fagundes, et Marta Carvalho. « Cerebral Venous Thrombosis after BNT162b2 mRNA SARS-CoV-2 Vaccine ». *Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association* 30, n° 8 (août 2021): 105906. <https://doi.org/10.1016/j.jstrokecerebrovasdis.2021.105906>.
- İremli, Burçin Gönül, Süleyman Nahit Şendur, et Uğur Ünlütürk. « Three Cases of Subacute Thyroiditis Following SARS-CoV-2 Vaccine: Postvaccination ASIA Syndrome ». *The Journal of Clinical Endocrinology and Metabolism* 106, n° 9 (18 août 2021): 2600-2605. <https://doi.org/10.1210/clinem/dgab373>.
- Kuter, David J. « Exacerbation of Immune Thrombocytopenia Following COVID-19 Vaccination ». *British Journal of Haematology* 195, n° 3 (novembre 2021): 365-70. <https://doi.org/10.1111/bjh.17645>.
- Lee, Eun-Ju, Marina Beltrami-Moreira, Hanny Al-Samkari, Adam Cuker, Jennifer DiRaimo, Terry Gernsheimer, Alexandra Kruse, et al. « SARS-CoV-2 Vaccination and ITP in Patients with de Novo or Preexisting ITP ». *Blood* 139, n° 10 (10 mars 2022): 1564-74. <https://doi.org/10.1182/blood.2021013411>.
- Menni, Cristina, Kerstin Klaser, Anna May, Lorenzo Polidori, Joan Capdevila, Panayiotis Louca, Carole H. Sudre, et al. « Vaccine Side-Effects and SARS-CoV-2 Infection after Vaccination in Users of the COVID Symptom Study App in the UK: A Prospective Observational Study ». *The Lancet. Infectious Diseases* 21, n° 7 (juillet 2021): 939-49. [https://doi.org/10.1016/S1473-3099\(21\)00224-3](https://doi.org/10.1016/S1473-3099(21)00224-3).
- Morita, Shuhei, Tomoya Tsuji, Shohei Kishimoto, Shinsuke Uraki, Ken Takeshima, Hiroshi Iwakura, Hiroto Furuta, Masahiro Nishi, Hidefumi Inaba, et Taka-Aki Matsuoka. « Isolated ACTH Deficiency Following Immunization with the BNT162b2 SARS-CoV-2 Vaccine: A Case Report ». *BMC Endocrine Disorders* 22, n° 1 (19 juillet 2022): 185. <https://doi.org/10.1186/s12902-022-01095-3>.
- Murvelashvili, Natia, et Alex Tessnow. « A Case of Hypophysitis Following Immunization With the mRNA-1273 SARS-CoV-2 Vaccine ». *Journal of Investigative Medicine High Impact Case Reports* 9 (2021): 23247096211043384. <https://doi.org/10.1177/23247096211043386>.
- Polack, Fernando P., Stephen J. Thomas, Nicholas Kitchin, Judith Absalon, Alejandra Gurtman, Stephen Lockhart, John L. Perez, et al. « Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine ». *The New England Journal of Medicine* 383, n° 27 (31 décembre 2020): 2603-15. <https://doi.org/10.1056/NEJMoa2034577>.
- Sangli, Swathi, Ahmed Virani, Nicholas Cheronis, Brittany Vannatter, Corbyn Minich, Shaun Noronha, Rama Bhagavatula, Daniel Speredelozzi, Meera Sareen, et Robert B. Kaplan. « Thrombosis With Thrombocytopenia After the Messenger RNA-1273 Vaccine ». *Annals of Internal Medicine* 174, n° 10 (octobre 2021): 1480-82. <https://doi.org/10.7326/L21-0244>.
- Tarawneh, Omar, et Husam Tarawneh. « Immune Thrombocytopenia in a 22-Year-Old Post Covid-19 Vaccine ». *American Journal of Hematology* 96, n° 5 (1 mai 2021): E133-34. <https://doi.org/10.1002/ajh.26106>.
- Tews, Hauke Christian, Sarah M. Driendl, Melanie Kandulski, Christa Buechler, Peter Heiss, Petra Stöckert, Klaus Heissner, et al. « SARS-CoV-2 Vaccine-Induced Immune Thrombotic

Thrombocytopenia with Venous Thrombosis, Pulmonary Embolism, and Adrenal Haemorrhage: A Case Report with Literature Review ». *Vaccines* 10, n° 4 (12 avril 2022): 595. <https://doi.org/10.3390/vaccines10040595>.

Toom, Sudhamshi, Brian Wolf, Akshay Avula, Stephen Peeke, et Kevin Becker. « Familial Thrombocytopenia Flare-up Following the First Dose of MRNA-1273 Covid-19 Vaccine ». *American Journal of Hematology* 96, n° 5 (1 mai 2021): E134-35. <https://doi.org/10.1002/ajh.26128>.