



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

# Journal Pre-proof

Gaining Perspective on mRNA COVID-19 Vaccination Risk

Warren R. Heymann, MD

PII: S0190-9622(23)01198-2

DOI: <https://doi.org/10.1016/j.jaad.2023.06.034>

Reference: YMJD 17788

To appear in: *Journal of the American Academy of Dermatology*

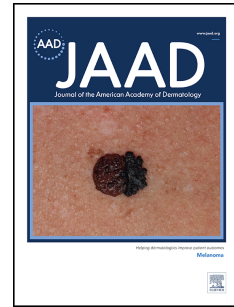
Received Date: 18 June 2023

Accepted Date: 19 June 2023

Please cite this article as: Heymann WR, Gaining Perspective on mRNA COVID-19 Vaccination Risk, *Journal of the American Academy of Dermatology* (2023), doi: <https://doi.org/10.1016/j.jaad.2023.06.034>.

This is a PDF file of an article that has undergone enhancements after acceptance, such as the addition of a cover page and metadata, and formatting for readability, but it is not yet the definitive version of record. This version will undergo additional copyediting, typesetting and review before it is published in its final form, but we are providing this version to give early visibility of the article. Please note that, during the production process, errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

© 2023 Published by Elsevier Inc. on behalf of the American Academy of Dermatology, Inc.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21

Gaining Perspective on mRNA COVID-19 Vaccination Risk

Warren R. Heymann, MD

100 Brick Road – Suite 306

Marlton, New Jersey 08053

Phone 856-596-0111

Fax 856-596-7194

Email: wrheyman@gmail.com

Conflicts of Interest: None

Financial Disclosure: None

Patient Consent Forms: Not applicable

Word Count: 500

References: 5

Key Words: COVID-19, mRNA vaccine, autoimmune disease, collagen vascular disease

22 Discussing COVID-19 vaccinations will be ongoing *ad infinitum*. “Vaccine makers should target  
23 the XBB variant of the coronavirus in a shot to be available in the fall” according to an advisory  
24 panel to the Food and Drug Administration. Although the COVID-19 landscape has improved  
25 this year, “those who remain vulnerable include the unvaccinated, people who are  
26 immunocompromised and those who have diabetes or chronic kidney, lung, cardiovascular or  
27 neurologic diseases. People 65 and older are also at risk, and that rises with age.” (1)

28

29 Despite our advances, questions regarding vaccination abound, especially for the mRNA-based  
30 vaccines (BNT162b2, Pfizer-BioNTech; mRNA-1273, Moderna). Most clinicians have likely  
31 encountered a patient(s) developing a dermatosis within a few weeks of receiving these  
32 vaccines, curious if the vaccine was the inciting culprit.

33 In this issue of the *Journal of the American Academy of Dermatology*, Ju et al assessed the risk  
34 of developing autoimmune and connective tissue disorders after mRNA-based COVID  
35 vaccinations. A total of 3,838,120 vaccinated individuals and 3,834,804 historical controls  
36 without evidence of COVID-19 were included. The risk of alopecia areata, psoriasis, vitiligo, anti-  
37 neutrophil cytoplasmic antibody (ANCA)-associated vasculitis, sarcoidosis, Behçet disease,  
38 inflammatory bowel disease, rheumatoid arthritis, systemic lupus erythematosus, systemic  
39 sclerosis, Sjögren syndrome, ankylosing spondylitis, dermatomyositis, and bullous  
40 pemphigoid (BP) was not significantly higher in vaccinated individuals than in controls, however  
41 there was an increasing trend for the risk of ANCA vasculitis and BP. The risk of myocarditis,  
42 pericarditis, and thrombocytopenia was increased in vaccinated patients compared to controls.  
43 The authors concluded that most autoimmune connective tissue disorders are not associated

44 with a significant increase in risk from vaccination, although they advise caution when  
45 interpreting results for rare outcomes due to limited statistical power. (2)

46 Anyone who develops a disease following a COVID-19 vaccination will easily find literature to  
47 support their suspicion that the vaccine was causative. Most are case reports or small case  
48 series. Examples include a 63-year-old Saudi hypertensive, diabetic woman the patient whose  
49 generalized morphea started appearing 2 weeks after receiving her second dose of Pfizer-  
50 BioNTech COVID-19 vaccine (3); a 67-year-old Japanese woman who developed cutaneous IgA  
51 vasculitis and nephropathy the day she received the second dose of the Pfizer-BioNTech COVID-  
52 19 vaccine (4).

53 The mechanism(s) causing these reactions remains undetermined – perhaps molecular mimicry  
54 between SARS-CoV-2 and vaccine components is at play in some cases. As all of these disorders  
55 existed in the pre-COVID-19 era, coincidence is always a consideration (your unfortunate  
56 patient with autoimmune or connective tissue disorders post-vaccine will not believe it).

57 It is our responsibility to put this in perspective for patients concerned about the risk of  
58 developing autoimmune or connective diseases from the vaccine, or whether to take the  
59 vaccine if they have these diseases. I concur with Kasperkiewicz and Woodley who state, “the  
60 association between COVID-19 vaccination and AIBDs [autoimmune bullous disorders] remains  
61 uncommon or even coincidental. This should encourage COVID-19 vaccination in patients with  
62 AIBDs, particularly in those whose disease is controlled at the time of vaccine administration,  
63 since benefits of vaccination far outweigh this questionable risk.” (5)

64  
65  
66  
67  
68  
69  
70  
71  
72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85

1. Jewett C. F.D.A panel advised vaccine makers to aim at only one Covid variant. New York Times. June 15, 2023. <https://www.nytimes.com/2023/06/15/health/fda-covid-vaccine-boosters-xbb.html> (accessed June 17, 2023)
2. Ju HJ, Lee JY, Han JH, Lee JH, Bae JM, Lee S. Risk of autoimmune skin and connective tissue disorders after mRNA-based COVID-19 vaccination. *J Am Acad Dermatol.* 2023; 89:xxx
3. Sugita K, Kaneko S, Hisada R, Harano M, Anno E, Hagiwara S, Imai E, Nagata M, Tsukamoto Y. Development of IgA vasculitis with severe glomerulonephritis after COVID-19 vaccination: a case report and literature review. *CEN Case Rep.* 2022 Nov;11(4):436-441. doi: 10.1007/s13730-022-00695-1. Epub 2022 Mar 11. PMID: 35275366; PMCID: PMC8914443.
4. Sugita K, Kaneko S, Hisada R, Harano M, Anno E, Hagiwara S, Imai E, Nagata M, Tsukamoto Y. Development of IgA vasculitis with severe glomerulonephritis after COVID-19 vaccination: a case report and literature review. *CEN Case Rep.* 2022 Nov;11(4):436-441. doi: 10.1007/s13730-022-00695-1. Epub 2022 Mar 11. PMID: 35275366; PMCID: PMC8914443.
5. Kasperkiewicz M, Woodley DT. COVID-19 and autoimmune bullous diseases: Lessons learned. *Autoimmun Rev.* 2023 Apr;22(4):103286. doi: 10.1016/j.autrev.2023.103286. Epub 2023 Feb 2. PMID: 36738951; PMCID: PMC9893837.