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Letter to the Editor

Ankylosing Spondylitis New-Onset Following Vaccination: A Review

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How To Cite: de Carvalho, J.F.; Martinez, A.T.A. Ankylosing Spondylitis New-Onset Following Vaccination: A Review. *Journal of Mosaic of Autoimmunity* **2025.**

Received: 23 April 2025
Revised: 10 July 2025
Accepted: 15 July 2025
Published: 24 July 2025

Abstract: This study reviewed reports of ankylosing spondylitis (AS) following vaccination by searching Scielo, PubMed, and Web of Science (1966–April 2024). Only two articles were found, encompassing 3,862,339 participants and 910 post-vaccination AS cases (793 after COVID-19 vaccines and 117 after other vaccines, including 22 following influenza vaccination). The mean age was 45.7 ± 18.7 years, and symptom onset occurred 2 (1–7) days post-vaccination. Preliminary evidence suggests vaccine-induced AS, warranting standardized prospective research.

Keywords: ankylosing spondylitis; spondyloarthritis; vaccination; vaccine

Autoimmune disease onset after vaccination is primarily known as systemic lupus erythematosus, rheumatoid arthritis, myositis, and others [1]. Although it is not expected to observe descriptions of ankylosing spondylitis (AS) after vaccines, this article aimed to review the studies on AS induced by vaccines. AS is a long-standing inflammatory rheumatic disease of undetermined etiology, with a prevalence ranging from 0.1% to 1.4% and is largely studies in rheumatology field [2].

The literature on this field was screened between 1966 and April 2024. No language limitation was used. Scielo, Pubmed, and Web of Science were the databases analyzed.

The search found only two articles with 3,862,339 participants [3,4]. The mean age was 45.7 ± 18.7 year-old, although described in only one study [4]. Female gender predominated in one study [3] and males in the other [4]. The follow-up ranged from 100.7 ± 90.3 days to 5.1 years. Very interestingly, AS after vaccination was described in 910 of these subjects. Both articles evaluated autoimmune diseases after COVID-19 vaccination, and in one study, they described 117 AS cases induced by other vaccines. Although the article describes only 22 cases after the influenza vaccine, the other 95 are not reported [2]. The time to AS onset was 2 (1–7) days after the vaccine [3]. No more details are available (see Table 1).

Researchers have proposed several mechanisms for the onset of autoimmunity after vaccines, including molecular mimicry, epitope spreading, bystander activation, or superantigenic T-cell activation [1]. However, the exact mechanisms by which vaccination induces autoimmune disorders are not yet known.

Regarding limitations, although the analysis involves more than 3.8 million participants, it is based on only two articles. However, this does not introduce bias, as they are the only published studies available in the literature. Another limitation is the scarcity of clinical information in these articles, including 95 cases without detailed description. Finally, the retrospective design without a control group underscores the need for standardized prospective studies to confirm any causal association between vaccination and the onset of ankylosing spondylitis.

This review found only two articles on vaccination-induced AS, although with many participants. It also found 910 subjects who developed AS after COVID-19 and a few other vaccines. Future studies with reports of AS after vaccines are desired.

Table 1. Studies on ankylosing spondylitis after vaccination.

Author, Year, Reference	Study Design	Country	N (Database)	N of AS	Age, Gender	Time of Disease Onset	Vaccine	Follow-Up	Period of Study
Kim et al., 2024 [3]	VigiBase from the World Health Organization database	Korea	25,219 AIDs associated with COVID-19 vaccines	633 COVID-19 and 117 other vaccines	ND (mean or median age) 62.1% females	2 (1–7) days	COVID-19 Others (22 influenza)	100.7 ± 90.3 days	11 December 2020, to 26 July 2022
Ju et al., 2023 [4]	Nationwide population-based study	Korea	3,838,120 vaccinated individuals and 3,834,804 controls	160	45.7 ± 18.7 yo 51.5% males	ND	COVID-19	5.1 years	Before 31 December 2021 to 31 December 2021

AIDs: autoimmune diseases; COVID-19: coronavirus disease 2019; N: number; ND: not described; yo: years old.

Author Contributions

J.F.d.C.: conceptualization, methodology, data curation, writing—original draft preparation; A.T.A.M.: visualization, investigation; reviewing and editing. All authors have read and agreed to the published version of the manuscript.

Funding

This research received no external funding.

Institutional Review Board Statement

Ethical review and approval were waived for this study, due to this article is a Letter that reviewed the scientific literature.

Data Availability Statement

All data generated by this study is included in it.

Conflicts of Interest

The authors declare no conflict of interest.

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