

# Post COVID-19 vaccination reactive lymphadenopathy on <sup>18</sup>F-FDG PET

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## Conclusion

Reactive FDG-avid lymph nodes can be visualized after COVID-19 vaccination, regardless of the vaccination type, for at least four weeks post-vaccination. Therefore it is crucial to report this information to the physician interpreting the FDG images.

## Background

After the onset of the mass COVID-19 vaccination globally, numerous case reports have been published regarding fluorodeoxyglucose (<sup>18</sup>F) (<sup>18</sup>F-FDG) avid lymph nodes associated with the vaccination. According to The Society of Nuclear Medicine and Molecular Imaging (SNMMI), FDG-avid lymphadenopathy can be visualized up to 4-6 weeks post COVID-19 vaccination [1].

## Aim

This study aimed to investigate if COVID-19 vaccines lead to reactive FDG-avid lymph nodes and the duration of the avidity. Moreover, to compare this phenomenon among different types of vaccines (AstraZeneca, Moderna, and Pfizer/BioNTech).

## Material and Methods

During March and April 2021, a total of 43 patients were included in the study. All patients with at least one dose of vaccine administered during the last two months were included. During the examination, patients were interviewed regarding COVID-19 vaccination (vaccination type, date, and injection site for the vaccination). The authors reviewed the images and the examination reports concerning the presence of reactive FDG-avid lymph nodes (positive findings).

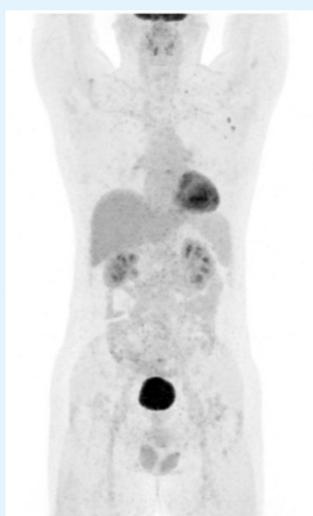


Fig1. Reactive FDG-avid lymph nodes (left axillary), 6 days after COVID-19 vaccination (Pfizer-BioNTech).

## Results

Totally 33% of the included patients presented with reactive lymph nodes (Fig1). 7/14 patients vaccinated with AstraZeneca, 2/9 patients with Moderna, and 5/20 patients with Pfizer/BioNTech. The number of days between vaccination and the FDG-PET examination among patients with FDG-avid lymph nodes were 14 (2-45) for AstraZeneca, 10.5 (7-14) for Moderna, and 6 (2-27) for Pfizer/BioNTech (Table 1).

Table 1.

	AstraZeneca	Moderna	Pfizer-BioNTech	All vaccines
<b>N (%)</b>				
all	14	9	20	43
positive	7	2 (22)	5 (25)	14 (33)
<b>Age (years)</b>				
all	72 (53-82)	75 (32-81)	76.5 (36-85)	75 (32-85)
positive	71 (53-72)	53.5 (32-75)	79 (55-85)	71 (32-85)
<b>Sex (female, %)</b>				
all	6 (43)	2 (22)	14 (70)	22 (51)
positive	4 (57)	0 (0)	1 (20)	5 (36)
<b>Intervall* (days)</b>				
positive	14 (2-45)	10.5 (7-14)	6 (2-27)	13 (2-45)
<b>Intervall* (n)</b>				
1-5 days	2	0	2	4
6-10 days	0	1	1	2
11-20 days	4	1	1	6
21-30 days	1	0	0	1
>30 days	0	0	1	1

\*days between vaccination and a positive PET scan

All data are presented as numbers (percent) or median (range)

1. Society of Nuclear Medicine and Molecular Imaging. SNMMI Statement: The Effect of COVID-19 Vaccination on FDG PET/CT [Internet]. Virginia: SNMMI; 2021 [cited 2021 April 30]. Available from: <https://www.snmmi.org/NewsPublications/NewsDetail.aspx?ItemNumber=36729>

