

Supplemental Online Content

Adin ME, Isufi E, Kulon M, Pucar D. Association of COVID-19 mRNA vaccine with ipsilateral axillary lymph node reactivity on imaging. *JAMA Oncol*. Published online June 10, 2021. doi:10.1001/jamaoncol.2021.1794

eMethods

This supplemental material has been provided by the authors to give readers additional information about their work.

eMETHODS

Patients

The study was approved by the IRB at Yale University and informed consent requirement was waived. All patients who underwent FDG-PET/CT scan between 12/11/2020 and 3/1/2021 at a single tertiary academic medical center were screened for COVID-19 vaccination. Seventy six of 1290 of patients received at least one dose of COVID-19 vaccine based on medical records and vaccine registry searches. Six patients with tracers other than FDG, one patient with FDG and vaccine injections to the same extremity, and one patient with extensive metastatic disease were excluded. 68 patients were analyzed. None of patients included in this study had laboratory evidence of prior COVID-19 infection.

PET/CT

Regardless of indication, all patients underwent standard oncologic FDG PET/CT preparation (at least 4-6 hour fasting, no strenuous exercise for 48 hours) with FDG injected to contralateral arm in those with a history of COVID vaccination. PET/CT scans were performed approximately 1 hour after FDG injection. Four radiologists with at least 10 years of experience reviewed PET/CT scans in consensus.

Data analysis

Axillary nodes ipsilateral to vaccination site were classified as non-reactive or reactive based on mediastinal blood pool (MBP) reference on PET. Nodal FDG activity was assessed using Deauville (D) scale, which is an international standard for lymphoma evaluation, as following: (1) no activity, (2) activity \leq MBP, (3) activity $>$ MBP but $<$ liver, (4) activity $>$ liver but $<$ 2 x liver, (5) activity $>$ 2 x liver. Nodes with the activity \leq MBP (D1-2) were considered non-

reactive, while the nodes with the activity > MBP (D3-5) were considered reactive. Nodal size was measured on CT; nodes ≥ 10 mm were considered enlarged. Focal injection site activity (typically in the deltoid region) was assessed on PET. Demographic parameters were age and sex. Vaccinal parameters were vaccine type (Moderna vs. Pfizer), vaccine does (1st vs. 2nd), and vaccine to PET scan time. Immunologic parameter was absolute neutrophil count. Statistical analyses were performed using R statistical Software (version 3.6.3; The R Foundation). Fisher's exact test was used to compare groups (significance threshold: $p < 0.05$).