

Nuclear Medicine VQ Scanning and COVID-19

By John Kalabat, MD, radiologist and nuclear medicine physician, Henry Ford Medical Group.

Nuclear medicine Ventilation/Perfusion scans have several different protocols at different institutions. This not only includes different ventilation agents, but also different timing of the study (ventilation followed by perfusion vs. perfusion followed by ventilation.) Since the advent of COVID-19, concerns have been raised regarding the risk of spreading COVID during this exam. There are unknowns about the transmission of the virus using ventilation systems. Specifically, there is a potential of risk of transmissibility of the virus during the ventilation portion of the study to the technologists and other patients. The change of protocol in response to COVID-19 at different institutions has been variable. The latest ACR and SNMMI statements on this topic as of 9/6/2020 are reviewed.

First, screening before the study is even done can be important. At my institution, chest radiographs less than 24 hours old are reviewed along with patient history/reason for the order. This is followed by a short discussion with the clinician. Renal function and possible allergies are discussed as it relates to viability of CTA. Often, after discussion, alternatives such as CTA chest and venous doppler are chosen.

If a "VQ" scan is indicated, nuclear medicine departments should consider not performing the ventilation portion of the study. Often a perfusion only scan is all that is needed. Normal perfusion scan rules out pulmonary embolism. Low probability perfusion only appearance is also usually helpful. A high probability perfusion appearance in the context of normal CXR is also helpful. Ventilation is not usually necessary in the above scenarios.

However, perfusion only scans can be indeterminate. A ventilation scan may be felt necessary to make a definitive interpretation, especially given the risks of anticoagulation in the population. In addition, ventilation images sometimes provide important information about airway patency and obstructive lung disease.

If a ventilation scan is considered to be helpful or necessary, multiple factors should be taken into account; these include a discussion with the referring clinician, hospital / department COVID-19 policies and procedures, and prevalence of COVID-19 in a specific area around the facility. Obtaining a negative COVID -19 PCR test can be helpful. Technologists should wear PPE according to local policies.

Radiologic safety with COVID-19 is a fluid and changing subject. The links for the latest statements from the ACR and SNMMI regarding COVID-19 and VQ scans as of 9/6/20 are below.

<https://www.acr.org/Advocacy-and-Economics/ACR-Position-Statements/COVID19-Nuclear-Medicine-Ventilation-Scans>

<https://www.snmmi.org/NewsPublications/NewsDetail.aspx?ItemNumber=34462>