Proactive Response of Nuclear Medicine Department in Current Coronavirus Disease-19 Pandemic

Sir,

The current coronavirus disease-19 (COVID-19) epidemic has affected every field of life internationally. Business, politics, trade, and education have been shut down to prevent loss of lives and limit the transmission. Radiology has played a vital role in the initial evaluation of affected patients, especially in reverse transcription–polymerase chain reaction-negative cases; however, the current focus of most medical imaging departments has shifted from diagnostic capability to preparedness.[1,2]

The current letter suggests a possible response of nuclear medicine departments during the current pandemic regarding the management of workflow. Given the circumstances, nuclear medicine workflow can be divided into nonurgent, urgent, and equivocal cases to reduce the risk of transmission of infection among the population. A general workflow management for the nuclear medicine department and its potential role in the current pandemic is discussed in Table 1.

Alternate Radiotracers in Case of Shortage of Tc-99m Supply

In case of nonavailability of Tc-99m generators, all main oncology bone and cardiology scans can be shifted to positron emission tomography/computed tomography (PET/CT) as per the current SNM and EANM guideline, keeping in view the reimbursement issues [Table 2].

Incidental Findings of Coronavirus Disease-19 during Normal Flow

Incidental pulmonary inflammatory findings during oncology PET/CT may be cautiously interpreted. In case of lower lobe/peripheral predominant, multiple, bilateral ground-glass opacities, crazy-paving, air bronchograms, a reversed halo pattern is highly suggestive of COVID-19 infection rather than non-COVID-19 pathology.[3,4]

Explorative Research Activities for Coronavirus Disease-19 Imaging

Looking at the current picture, nonimaging diasporas, i.e., multinational companies, have poured billions of dollars to deal with COVID-19 pandemic, focusing to develop new diagnostic tools and curative therapies. Highly sensitive molecular imaging using 18F-fluorodeoxyglucose (18F-FDG) has not been widely explored due to its high cost and theoretically is being labeled as of limited role without any large randomized controlled trials. Based on the diversity of the viral behavior limiting initial detection and equivocal postrecovery period diagnostics, it is suggested that large randomized controlled trials should be conducted to establish the role of 18F-FDG, especially in initial diagnostic triage to detect early pneumonitis and in follow-up setting to evaluate residual/recurrent disease and monitoring response to therapy.[5]

In acute lung injury, the rate of 18F-FDG uptake reflects the state of inflammatory process activation, i.e., C-reactive protein, CD4, CD8, and interleukin-6, pointing to an acute inflammatory response.[6,7] COVID-19 infection is believed to comprise the initial infiltration of inflammatory cytokines into the lung, followed by delayed morphological changes that are apparent on HRCT approximately 4–5 days postinfection with a peak reported between 6 and 11 days.[8] The cost of trials may be covered through multiple agencies in the world ready to fund the COVID-19 research; however, it is a fact that in the gulf region, 18F-FDG is free of cost for the nationals.

Staff and Department Safety

All radiology staff dealing with suspects must practice proper PPE, fluid-resistant (Type IIR) surgical face masks, filtering facepiece (Class 3) respirators, disposable eye protection, preferably visor, long-sleeved gown, gloves, scrubs, and strict hand hygiene. Separate gamma-cameras can be dedicated for COVID-19-confirmed or COVID-19-suspected cases with management of physicians in teams/groups so that in case of any COVID-19 suspicion, other teams may continue the department flow. Postimaging deep cleaning procedures must be adopted using chlorine-based antiseptics and ultraviolet light (if available) for 60–90 min. Patient waiting areas must be cleaned every 3–4 h. A continuous flow of air must be maintained to avoid air stagnation.

Online Reporting

Keeping minimal nuclear medicine physicians on-site, the department can offer online reporting through cloud-based image processing stations, i.e., MIM™.

Future of Nuclear Medicine in Coronavirus Disease-19 Pandemic

The current epidemic has brought the humanity down on the knees, but we should fight united against the current pandemic in our respective domains. If this would have happened two decades back, nuclear medicine would have been locked down, but now, as we have highly sensitive
targeted radio-tracers with high-tech state of the art digital gamma-cameras, nuclear medicine should be proactive and should take the responsibility to a level to be able to answer the questions of humanity using molecular radiology.

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There are no conflicts of interest.
Letter to the Editor

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