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What CORADS and the CT Covid Score Teach Us

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Structured reporting is extensively used worldwide as it improves reporting clarity and patient care. And yet, its acceptance in India is not as widespread as in the West. BI-RADS, PI-RADS, and LI-RADS are not used as commonly as in the West, nor are the various excellent reporting formats suggested by the Indian College of Radiology and Imaging.[1] Some radiologists find structured reporting unnecessary as their free-text reports 'cover all details' anyway. Others feel writing a structured report takes too much time. Many believe that it limits the 'art of reporting' and does not allow the flexibility needed in creating an individualized report. And perhaps inertia plays some role as well.

All these reasons though get contradicted by our recent experience with COVID. Let us look at what happened in the last 2 years. Once COVID hit India, every radiologist (including those who did not otherwise use structured reports) started giving not one but two standardized terminologies in each report - CORADS and the CT COVID score.[2,3] CORADS communicated the certainty of the COVID diagnosis, while the CT score conveyed the extent of lung involvement. Interestingly, CORADS and the CT COVID score (especially the latter) were not widely adopted internationally, nor recommended by international societies. This standardization evolved organically within India itself, and at a breakneck speed. Indeed, academic radiologists who long championed the cause of structured reporting were left scratching their heads about why CORADS succeeded compared with other better established RADS! It was probably partly because of its simplicity, and partly because the lockdown allowed many to read COVID-related radiology literature and then create a helpful template. The clinical impact of the template then helped spread the use.

As we now look back, a few things are clear.

First, the adoption of the COVID template was radiologist-driven. It was not that physicians demanded CORADS and a structured report, forcing us to create one. It was we as a community who took the lead and started providing these details.

Second and more importantly, the standardized reports had an enormous impact. During the first and second waves, RT-PCR had limited availability and long turnaround times. This led to hospitals keeping suspect patients in 'holding areas/triage zones' until the RT-PCR results came back. Most hospitals, however, admitted patients with a CORADS 5 CT report into the COVID ward/ICU, even if the RT-PCR result was not yet out. Would everyone have allowed a 'COVID should be ruled out' or 'COVID needs to be considered' or 'findings consistent with an infectious etiology, probably COVID' report? Unlikely. There is just too much variability in the language of free-text impressions. CORADS undeniably enabled doctors to overcome hospital bureaucracy and provide timely treatment to innumerable COVID patients. The CT COVID score also had a huge impact. Many doctors in fact used the CT value to decide which patient needed hospital admission or steroid administration.

The third and interesting take-home point is that using structure and lexicon clearly did not slow down reporting. If anything, it made reports faster and more specific! We all know many radiologists who used to report over 30 to 40 chest CT scans daily during the second wave.

If we zoom out now and take a bird's eye view of what happened in the last 2 years, the lessons are there for all to see. The old arguments against structured reporting did not hold true. The standard template and lexicon allowed everyone to be on the same page. Depending on the CT score, the patient could either get only symptomatic treatment or steroids or go for hospital admission. The physician almost

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never needed to call the radiologist for any clarification, irrespective of whether the junior-most radiologist reported it or the senior-most. This was the key to why CT succeeded in guiding COVID management despite lack of evidence or international guidelines. To make the circle complete, the impact of the COVID template made CT a standard investigation for all COVID patients, driving up radiology volumes as well. In short, standardized COVID CT reports immensely helped all stake-holders. They enabled CT to become an almost essential COVID management tool in India, unlike any other country. Would this have happened to this extent without uniformly giving CORADS and the CT score? Almost certainly not.

Hopefully, this experience can drive more radiologists to use structured templates and RADS for other pathologies. For example, widespread adoption of ultrasound and CT/MRI LIRADS could drive up the use of imaging for HCC screening in Hepatitis B and C patients, which is currently woefully low.

We can actually take a step further. We can even create more India-specific templates like we did for COVID. For example, radiology is also integral to the diagnosis of TB, India's biggest killer infection. TB treatment is in fact often started on the basis of the radiology report. USA or Europe will not be the ones introducing a TB-RADS lexicon. However, we could take a cue from our COVID experience and consider developing something like that. You sure it is active TB? Call it TB-RADS 5. Not sure about it being TB versus some other infection or inflammation? Have a specific TB-RADS for it. You feel it is only TB sequela and not active TB, introduce a dedicated term in the RADS for that (TB-RADS Seq or TB-RADS 2S); this may save some headache for those applying for jobs in India and abroad. We can define specific descriptors and findings that help classify a chest X-ray or chest CT as TB-RADS 1–5, similar to other RADS.

But we should not stop there either. The actual fact is that most clinical COVID management in India (including the widespread use of CT and the polypharmacy) was a combination of 'experience'-based, 'gut-feeling'-based and 'what's-the-harm'-based medicine; evidence-based medicine had pretty much gone for a toss. For example, it was standard practice to start steroids early in patients who had a 'high' CT score but no hypoxia. However, we still do not know whether this was *actually* beneficial. As per the national and international guidelines, steroids should be started in COVID patients only once they develop hypoxia. Starting them early in mild COVID patients actually worsens outcomes as steroids suppress the patient's immune response against COVID. Given these facts, the logical question to ask would be whether giving steroids would help patients who are not hypoxic but have moderate lung involvement on CT? If beneficial, at what CT score cut-off should we start steroids—12 or 15 or 18?

This question could have been answered by conducting a clinical trial, but was not. This was an example of a missed clinically relevant research opportunity. Overall, given the high volumes of screening and diagnostic COVID CTs performed in India, we could have probably achieved more in terms of research and publications in high impact factor journals. We would do well to acknowledge this scope for improvement for the future.

The extraordinary 2-year COVID journey has taught us a lot, both in radiology and beyond. As we continue our drive to positively impact patient care, let us apply these lessons beyond COVID and widely adopt established structured templates across relevant pathologies. And let us work with scientific rigor and repeat this success by creating, validating, and adopting more India-specific lexicon and templates.

References

1 Radiology protocols and reporting guidelines. Accessed October 02, 2022 at: https://icri.iria.org.in/radiology-imaging-guidelines
2 Prokop M, van Everdingen W, van Rees Vellinga T, et al; COVID-19 Standardized Reporting Working Group of the Dutch Radiological Society. CO-RADS: a categorical CT assessment scheme for patients suspected of having COVID-19-definition and evaluation. Radiology 2020;296(02):E97–E104
3 Li K, Wu J, Wu F, et al. The clinical and chest CT features associated with severe and critical COVID-19 pneumonia. Invest Radiol 2020;55(06):327–331

