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EDITORIAL COMMENT

The Power of Performing Tissue Characterization in Inflammatory Conditions

A Good Short-Time Prognosis*

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The fast development of vaccines against COVID-19 would not have been possible without groundbreaking discoveries regarding mRNA that were recently awarded the Nobel Prize in Physiology and Medicine.[1] However, despite the success of immunization, reports have shown that post-vaccine-related myocarditis (PVM) may occur especially in young males.[2] The myocardial inflammation seems to be mild and has few longtime complications compared with the immediate benefits in terms of protection against severe COVID-19 complications.[3] However, the pathogenesis of PVM is still debated.[4]

Cardiac magnetic resonance (CMR) has become an important modality in the diagnostic workup of noncoronary-troponin-positive hospitalized patients, where myocarditis is frequent. CMR is valuable for initial diagnosis in the acute phase as well as for follow-up.[5] Acute phase diagnostic imaging criteria were determined in 2009[6] and updated in 2018.[7] In this issue of *JACC: Advances*, Aviv et al[8] report their experience imaging PVM compared to imaging a matched group of patients with "classical myocarditis," CM. Their research question is whether PVM has characteristic imaging features and what the short-term outcome of PVM is. Because the diagnosis of a viral pathogen is seldom sought in "classical myocarditis," the authors acknowledge that in the CM group, myocarditis related to COVID-19 as well as genetic or autoimmune-related myocarditis may have been present.

The study retrospectively analyzed patients referred for CMR of either PVM or CM investigated at 2 CMR referral centers. An important feature of this study is that imaging was in most cases performed in the convalescent phase, on average 3 months after the diagnosis, why many patients did not fulfil the updated Lake Louise criteria for imaging positive myocarditis.[7]

The scanning protocol included cine, wall motion, T1 and T2 mapping, and late gadolinium enhancement (LGE). The authors demonstrate good reproducibility in their measurement results. They found, in general, normal left ventricular volumes, left ventricular ejection fraction, and same extent of LGE in both groups. Compared to the CM group, the PVM group had more epicardial and midwall LGE, lower T1, and were more likely to have normal T2 and extra-cellular volume. These findings are in agreement with those of a review of CMR with 468 pooled patients.[9]

The study illustrates the power of performing tissue characterization in inflammatory conditions and that PVM has a good short-time prognosis. However, further studies will be needed to characterize imaging findings in the acute phase of PVM.

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The author attests they are in compliance with human studies committees and animal welfare regulations of the author's institution and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the Author Center.

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