

T1 mapping values of Left Ventricular base and apex. Where to measure?

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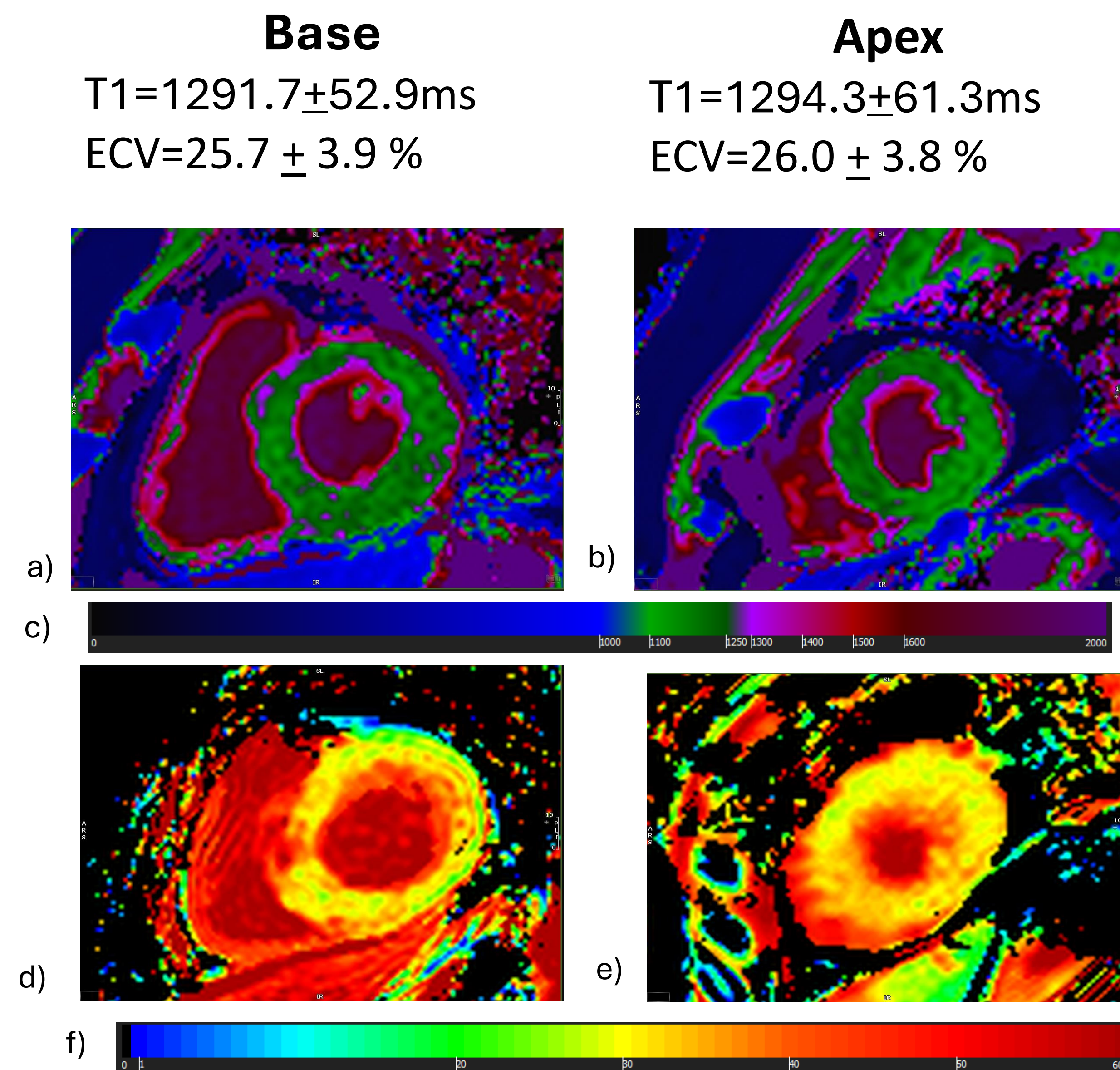
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Background: T1 parametrical mapping is highly sensitive and important for a number of pathologies, but the whole myocardium is often not depicted due to increased artifacts, patient's cooperation or limited time for the examination. Therefore, the purpose of this study was to assess the effect of myocardial region in the measurement of T1 parametric maps.

Materials and Methods: For this study 51 subjects blinded to pathology (eg, sarcoidosis, heart failure, cardiomyopathy), were included, avoiding individuals with focal increased T1 native values. All participants underwent the same CMR imaging protocol, including a 3 slice T1 mapping pre and 15 minutes post gadolinium injection. A product of T1 mapping, ECV was calculated using hematocrit level for each examinee. The global values for each slice were calculated and a paired t-test was used to evaluate whether there is a significant difference between basal and apical values.

Results: The native T1 relaxation times and ECV values weren't differentiated between the two regions (1291.7±52.9 and 1294.3±61.3 for native T1 basal and apical values respectively, p=0.640, 25.7±3.9 and 26.0±3.8 for basal and apical ECV values respectively, p=0.455).

Conclusion: T1 relaxation time and ECV are not affected by the differed segments of the heart. This can be useful when all slices cannot be measured due to artifacts, patient's cooperation or faster examinations.



T1 mapping of a) basal, b) apical slices and c) color scale of T1 mapping in msec. ECV d) basal, e) apical slices and f) color scale of ECV in percentage (%). Myocardium has similar T1 and ECV values in both areas