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The role of scar and border zone geometric features on the genesis and maintenance of re-entrant ventricular tachycardia in patients with previous myocardial infarction: a simulation study

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In patients with healed myocardial infarction the left ventricular ejection fraction is characterized by low sensitivity and specificity in the prediction of future malignant arrhythmias. Hence, daily practice in clinical cardiology needs new parameters for the arrhythmic risk stratification. The aim of this study is to investigate by means of parallel numerical simulations, based on the Monodomain model of electrocardiology, the role of scar and border zone geometry on the genesis and maintenance of re-entrant ventricular tachycardia (VT). We consider the left ventricular models of two post myocardial infarction patients with moderate systolic dysfunction and different vulnerability to VT at electrophysiologic testing.