Association of Myocardial Scar Burden Identified by MRI and Left Ventricle Ejection Fraction (LVEF) in Patients with Ischemic Heart Disease (IHD), A Retrospective Cohort Study

Magdi A. Al-dheari, Sarah I. Al-laaboun, Samiha F. Khayyat, Mazen M. Alkhuzai, Aseel A. Aljunaid, Mariam A. Andijani and Fatma A. Aboul-Enein.

BACKGROUND

Cardiovascular megnetic resonance imaging-late gadolinium enhancement **(**CMR-LGE) has the ability to identify myocardial scar. we aim to explore the association between scar burden (extent and severity) And follow-up LVEF.

MATERIALS AND METHODS

We studied 159 patients (88.1% men) with IHD who underwent LGE-CMR for LV viability assessment at KAMC-Makkah from 2012 to present. Scar (defined as myocardium with a signal intensity 50% of the maximum in scar tissue). LGE assess semiquantitvely A five-point scale system that will be used to describe the transmural extent of LGE in each segment (scar score): 0=no LGE, 1=1%–25%LEG, 2=26%– 50%LGE, 3=51%–75%, and 4=76%–100%. Baseline EF (<6 month before CMR) and follow-up EF (>1month after CMR) was determined by Echocardiography.

RESULTS

The mean age was 57.24±9.99 years and the mean baseline LVEF was 28.3±10.5.

Mean scar percentage and transmurality score were higher in patients with severely and moderately depressed baseline LVEF compared to mild to normal LVEF. (38.37±20.7 and 39.15±16.84 vs. 18.46±19.53, p<0.001, and 8.28±4.91 and 8.65±4.26 vs. 4.16±15.12, p=0.003), respectively. On linear regression, baseline EF and scar score% significantly predicted follow-up EF, (b=0.535, p <0.001 and b=-0.102, p=0.024), respectively. baseline EF and Left Anterior Descending artery (LAD) territory viability significantly predicted ΔEF in patient with severely depressed LVEF, (b=-0.452 , p=0.007 and b=7.050 , p=0.002), respectively.

CONCLUSION:

Scar burden is an independent factor and is negatively associated with follow-up EF. In patient with IHD and severely reduced EF, a LAD territory viability is a predictor of the change in EF.