

Left Ventricular Ejection Fraction as a Predictor of All-Cause Mortality and Major Adverse Cardiovascular Events in Patients Presenting with Noncardiac Conditions

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Background:

Patients with sepsis and a left ventricular ejection fraction (LVEF) of <50% were found to have an elevated 30-day and 1-year rate of major adverse cardiovascular events (MACE). However, the impact of LVEF on MACE and all-cause mortality in other noncardiac hospitalized patients has not yet been well established.

Methods:

918 consecutive patients, aged 18 years and older who presented to the University of Kentucky Medical Center between January 2017 and October 2017 for non-cardiac conditions were retrospectively studied. Of these patients, 314 patients underwent echocardiography and non-gated computed tomography (CT) of the chest as part of their initial work-up. Echocardiograms were interpreted by board certified readers and CT scans of the chest were read by a noncertified and a certified readers successively until 90% concordance was met for the presence and severity of coronary artery calcification (CAC). Primary and secondary outcomes were all-cause mortality and major adverse cardiovascular events at 30 days and 1 year respectively.

Results:

Among 314 patients who underwent echocardiography and non-gated CT scans of the chest, 219 patients had a normal EF (>50%), 28 patients had a mildly reduced EF (41-50%), 20 patients had a moderately reduced EF (31-40%), and 47 patients had a severely reduced EF (<31%). Mortality occurred in 71 (32.4%) patients with normal EF, 11 (39.3%) patients with a mildly reduced EF, 14 (70%) patients with a moderately reduced EF and 29 (61.7%) patients with a severely reduced EF [p<0.001].

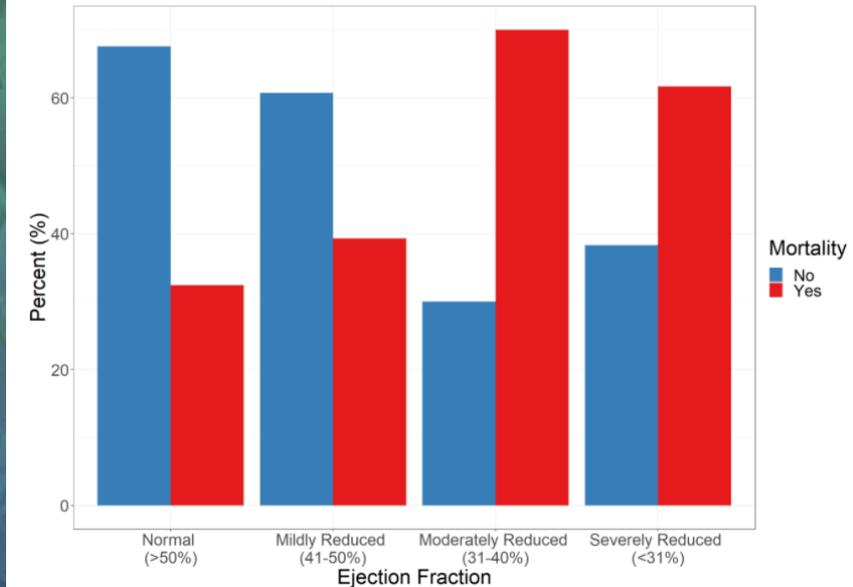
Mortality at 30 days was 50% and 55% of deaths in the moderate and severely reduced EF groups respectively. Although MACE occurred in only 15 patients, it was more prevalent

in the moderate (20%) and severely reduced (14.9%) EF groups compared to those with mildly reduced EF (0%) or normal EF (1.8%) with a p<0.001.

Patients in the moderately reduced EF (50%) and severely reduced EF (44.7%) groups were also more likely to have left main coronary artery calcification than the mildly reduced EF (35.7%) and the normal EF groups (24.2%) with a p=0.006.

The presence and severity of CAC did not consistently predict all-cause mortality and MACE in this patient cohort.

Figure 2: Mortality Stratified by Ejection Fraction Group



Left ventricular ejection fraction is a useful predictor of both all-cause mortality and MACE in patients presenting with non-cardiac conditions and when available, should be employed as part of a risk stratification tool for predicting outcomes.