

by age, sex, renal function, left ventricular ejection fraction, diabetes, or peripheral vascular disease.

In a nationwide cohort of 9,047 patients in Sweden who underwent isolated SAVR over a 15-year period, we found that a small increase in post-operative serum creatinine of only  $\geq 0.3$  mg/dl ( $\geq 26$   $\mu$ mol/l) was associated with a 27% increased risk of death and a  $>4$ -fold increased risk of ESRD during follow-up. The increased risk of death or ESRD in patients with AKI was independent of pre-operative renal function and other clinically relevant parameters. The main strength of our study was the nationwide population-based design with complete and accurate follow-up, ensuring a high external validity. The main limitations were that few patients developed ESRD during follow-up, which resulted in low precision in ESRD risk estimates and the possibility of residual confounding. Our findings are interesting, because very few patients had established coronary artery disease and because risk factors for cardiovascular disease were less prevalent than in previous studies on AKI after cardiac surgery that included patients who had coronary artery disease. In the present study, the associations between AKI and increased risk of ESRD were similar to the results of our prior study on AKI after coronary artery bypass graft (CABG) and risk of ESRD (2). Patients who underwent isolated CABG were more often diabetic (23% vs. 14%) and more likely to have had a prior myocardial infarction (45% vs. 8%) compared with patients in the present study (2). These findings strengthen the idea that there may well be a causal relationship between AKI and adverse outcomes and that AKI may not merely be a marker of more advanced atherosclerotic disease. From a clinical perspective, we believe that our findings underscore the need for close monitoring of patients with AKI. This may be especially important for patients who undergo isolated SAVR because they are less likely to receive medication that can prevent deterioration of renal function compared with CABG patients, who often already have guideline-recommended secondary prevention medication.

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## BMI Reduction Decreases AF Recurrence Rate in a Mediterranean Cohort



The interesting reading of the excellent articles by Pathak et al. (1,2) triggered us to retrospectively review a cohort of 1,068 consecutive patients with atrial fibrillation (AF), to evaluate whether the correlation between body mass index (BMI) and AF behavior could also be verified in an unselected group of Mediterranean patients, being that, to the best of our knowledge, such information is still unreported.

Among 653 patients referred between 2005 and 2014, 258 patients with the following data available were included: electrocardiographic (ECG) documentation of paroxysmal or persistent AF, initial and follow-up BMI data, reliable ability to report AF-related symptoms, exhaustive clinical history, guidelines-consistent (3) treatment, and at least 3 reassessments during a minimum 6-months follow-up period. Exclusion criteria were the same as in LEGACY (Long-Term Effect of Goal Directed Weight Management on Atrial Fibrillation Cohort: A 5 Year Follow-Up Study). According to BMI and its variation during follow-up, patients were stratified into 4 groups, as follows: Group 1 (n = 42, baseline BMI  $<25$  kg/m<sup>2</sup> and unchanged during the follow-up); Group 2 (n = 81, BMI  $>25$  kg/m<sup>2</sup> and losing 2 or more units during the follow-up); Group 3 (n = 73, with BMI  $>25$  kg/m<sup>2</sup>, unchanged during the follow-up); Group 4 (n = 62, BMI  $>25$  kg/m<sup>2</sup> and gaining 2 or more units during the follow-up). All were encouraged to keep/reach BMI  $\leq 25$  kg/m<sup>2</sup> with diet and/or moderate exercise. Overall follow-up was 602 patient-years. ECG-documented AF recurrences were most frequent in Group 4 patients, with a significant correlation between BMI behavior and

the time interval between subsequent recurrences (every 2.6 months [Group 4], 5.5 months [Group 3], 13.7 months [Group 2], and 15.2 months [Group 1]). Therefore, we can confirm that BMI reduction has a preventive effect against AF recurrence and that the LEGACY study results can be applied also to Mediterranean patients. In addition, we found that the clinical outcome of AF can be further improved, with similar incidence of comorbidities, if the target BMI reduction is higher (average 5.6 U, in our population).

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## REPLY: BMI Reduction Decreases AF Recurrence Rate in a Mediterranean Cohort



We thank Dr. Fioravanti and colleagues for running this analysis in the Mediterranean population and validating the key findings of LEGACY (Long-Term Effect of Goal Directed Weight Management on Atrial Fibrillation Cohort: A 5 Year Follow-Up Study) (1). This study demonstrated that in overweight and obese individuals with symptomatic atrial fibrillation (AF), progressive weight loss had a dose-dependent effect on long-term freedom from AF. With weight loss, we saw reduced burden of AF and improved maintenance of sinus rhythm (1). Cardiac

risk factors are associated with structural and electrical remodeling leading to development and progression of AF (2). Epidemiological studies confirm that the risk is dynamic in nature.

Fioravanti and colleagues, in a large cohort of patients, looked at the dynamic impact of weight on AF recurrence. The authors found an increased risk of AF with BMI >25 kg/m<sup>2</sup>. This study confirms the already established relationship between increased BMI and risk of AF. Additionally, it also testifies to the distinct effect of change in BMI on AF recurrence. Weight loss during follow-up was associated with reduced risk of AF, and a weight gain by contrast increased this risk. In addition, there was a dose-response effect of weight loss on AF recurrence. These findings are consistent with LEGACY study data.

Recent epidemiological data confirm the emergence of obesity and AF as global epidemics, conferring an enormous management and economic burden. The identification of risk factors for AF has ushered a risk factor-based approach for management. Indeed, aggressive management of risk factors with weight loss and increased physical activity are crucial elements in the management of AF (3,4).

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