Association of proton pump inhibitor use with disease burden and cardiometabolic profile among patients hospitalized for acute myocardial infarction

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Introduction: Previous studies showed an increased likelihood and risk of acute myocardial infarction (AMI) and hospitalizations for cardiovascular events among patients exposed to chronic use of proton pump inhibitors (PPIs).[1-3] In this study we aimed to compare parameters reflecting disease burden and cardiometabolic profile among patients treated for AMI with respect to the chronic exposure to PPIs.

Patients and Methods: Data of 143 adult consecutive patients hospitalized for ST-elevation myocardial infarction (STEMI) or non-ST-segment elevation myocardial infarction (NSTEMI) during the 2019-2020 period were analyzed. All continuous variables had a normal distribution.

TABLE 1. Comparison of consecutive patients with acute myocardial infarction exposed to chronic inhibitor of proton pump (IPP) use (IPP+ group) with those not exposed (IPP- group).

Variable	IPP+ group (N=19)	IPP- group (N=124)	p-value
Age, *years*	71.9 ± 9.6	63.3 ± 11.2	0.003*
Body mass index, *kg/m²*	26.2 ± 1.7	27.3 ± 3.4	0.201
Waist-to-hip ratio	1.03 ± 0.07	1.12 ± 0.88	0.644
Male sex	64.7%	81.9%	0.100
NSTEMI as a type of ACS	47.4%	33.1%	0.224
Mean Killip class	1.11 ± 0.33	1.10 ± 0.40	0.890
Mean number of diseased vessels	1.20 ± 0.44	1.17 ± 0.50	0.823
Left ventricular ejection fraction, %	50.8 ± 12.7	52.1 ± 9.8	0.656
Δcardiac Troponin I value, *ng/L*¶	4726 ± 5938	2554 ± 3480	0.025*
C-reactive protein, *mg/L*	27.4 ± 48.5	11.7 ± 20.0	0.015*
Glucose, *mmol/L*	9.5 ± 4.8	7.7 ± 3.0	0.037*
Creatinine, µmol/*L*	110 ± 56	89 ± 26	0.012*
Sodium, *mmol/L*	138 ± 2.9	137 ± 3.0	0.146
Potassium, *mmol/L*	4.04 ± 0.43	4.08 ± 0.40	0.724
GRACE score, *points*	132 ± 23	114 ± 26	0.008*

ACS-acute coronary syndrome; AMI-acute myocardial infarction; GRACE-Global Registry of Acute Coronary Events; NSTEMI-Non-ST-segment elevation myocardial infarction.

*result significant at a two-tailed p-value <0.05

¶high-sensitivity cardiac troponin I assay, mean difference from 1st to 2nd measurement

Results: The mean age was 64.8 ± 11.3 years and 79.7% were men. Two-thirds (65.7%) of patients had STEMI while 34.3% had NSTEMI. The mean GRACE score in the whole cohort was 117 ± 26 points while 12.6% of patients were at high risk of in-hospital death, after adjustment for the ACS type. A total of 19 IPP+ patients were identified. Patients in the IPP+ group were significantly older and had a higher prevalence of NSTEMI compared to IPP- group while both groups did not significantly differ in terms of sex, body mass index, waist-to-hip ratio, the mean number of diseased vessels at angiography, and left ventricular ejection fraction. Patient IPP+ group had a significantly higher high-sensitivity cardiac troponin I rise from 1st to 2nd measurement compared to IPP- group (4726 ± 5938 vs. 2554 ± 3480 ng/L, p=0.025, **Table 1**). Furthermore, C-reactive protein, blood glucose, and serum creatinine levels at admission were significantly higher in IPP+ vs. the IPP- group. Finally, patients in the IPP+ group had a significantly higher risk of in-hospital and 6-month post-discharge death compared to IPP- group, as adjudicated by the GRACE score (132 ± 23 vs. 114 ± 26 points, p=0.008).

Conclusions: Our study showed that AMI patients with chronic exposure to IPPs are older, mostly male, and tend to present with NSTEMI. These patients exhibit a larger magnitude of myocardial injury and systemic inflammation accompanied by worse renal function, and also seem to be at an increased risk of poor in-hospital and post-discharge outcomes. However, potential confounding of underlying co-morbidities and age must be taken into account when interpreting these results.

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LITERATURE

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