**The association between osteoarthritis and invasive treatment and clinical outcomes in 6.5 million patients presenting with acute myocardial infarction.**

Background

People with osteoarthritis (OA) have an increased risk of cardiovascular disease, including acute myocardial infarction (AMI). Despite OA being the most common joint condition and the fastest increasing major health condition, there is limited information on the management strategies and subsequent outcomes of OA patients presenting with AMI.

Purpose

To describe the association between OA and invasive management strategies (including coronary angiography (CA), percutaneous coronary intervention (PCI), and coronary artery bypass grafting (CABG)) and clinical outcomes.

Methods

We analysed all hospitalisations for AMI between 2004 and 2015 recorded in the National Inpatient Sample (NIS), the largest inpatient electronic health record database in the United States. The proportion of patients receiving CA, PCI, and CABG were compared between patients with and without OA, as were the proportions of in-hospital adverse events including major acute cardiovascular and cardiovascular events (MACCE; composite of mortality, cardiac complications and acute stroke), in-hospital mortality, stroke, and major bleeding. Multivariate logistic regression modelling with adjustment for potential confounders (demographics, medical history, and comorbidities) was performed to examine associations between OA and in-hospital clinical outcomes; results are expressed as adjusted odds ratios (AdjOR) with 95% confidence intervals (95% CI).

Results

A total of 6,561,940 people were hospitalised for AMI between January 2004 and September 2015, of which 444,217 (6.8%) had a concurrent diagnosis of OA. On average, those with OA were older (median: 77 vs. 67 years), more likely to be female (55.7% vs. 38.6%), and less likely to receive CA (55.3% vs. 65.2%), PCI (33.3% vs. 43.6%), and CABG (7.4% vs. 8.5%) (Figure 1A, p<0.001 for all). After adjustment for confounders, OA was associated with a lower likelihood of receiving CA (AdjOR 0.89; 95% CI 0.87, 0.90), PCI (0.85; 0.84, 0.87), and CABG (0.92; 0.90, 0.94). With reference to outcomes, OA was associated with lower likelihood of in-hospital adverse events (MACCE: AdjOR 0.71; 95% CI 0.69, 0.72; in-hospital mortality: 0.69; 0.67, 0.71; stroke: 0.81; 0.77, 0.85; and major bleeding: 0.73; 0.70, 0.75) (Figure 1B, p<0.001 for all).

Conclusion

In a national cohort of AMI hospitalisations, patients with OA were less likely to receive invasive management compared to those without OA. However, they were also less likely to experience adverse events. Further work is required to investigate treatment disparities in this increasingly prevalent patient group when presenting with AMI.

