Acute myocardial infarction (AMI), commonly referred to as a heart attack, is one of the leading causes of morbidity and mortality in the United States and around the world. A result of coronary artery disease, AMI is associated with a number of well-known risk factors, including exposure to air pollution—especially from fine and ultrafine particulate matter, volatile organic compounds (VOCs), and ground-level ozone.

A study published in Environmental Research examined whether unconventional natural gas development (UNGD or fracking) was associated with higher risks of AMI in residents living in the Marcellus Shale region. Alina Denham and her research colleagues analyzed hospital discharge and mortality data related to AMI from 2005-2014 from people living in Pennsylvania, where fracking activities are high, and from New York, where fracking is banned. This policy difference between the two states provides what the authors refer to as a natural experiment design, eliminating bias from the choice of study population.

The researchers discovered that hospitalization rates for heart attacks increased in Pennsylvania counties that hosted fracking sites when compared with New York counties that did not. The increase was seen in middle-aged males (45-54 years old) and in men and women 65 and older. In addition, mortality from AMI was more than 5% higher in middle-aged males in Pennsylvania when compared with frack-free counties in New York. The risk was cumulative: areas with more fracking activity saw more morbidity and mortality from AMI.

The authors suspect that air pollution and stress (both psychological and physical) from fracking may be to blame for the increases in heart attacks in Pennsylvania. Their hypothesis is supported by prior research:

- Air pollution contributes to ischemic heart disease and AMI in particular (Brook et al., 2010; Newby et al., 2015).
- The unconventional drilling phase involves several air polluting processes, such as emissions from the well and extensive truck traffic required to develop and maintain each unconventional well (Adgate et al., 2014).
- Research has established linkages between UNGD and decreased air quality in surrounding communities (HEI, 2019; Czolowski et al., 2017).
- A recent study found positive associations between the intensity of oil and gas development and production and several indicators of cardiovascular disease (augmentation index, blood pressure) and inflammatory markers associated with stress and short-term air pollution exposure (IL-1β, TNF-α) (McKenzie et al., 2019).

The authors conclude that taking a precautionary approach by prohibiting fracking may serve to better protect public health.