

Air pollution and cardiovascular diseases

Charalampos Grassos

Ambient air pollution (AAP) and particulate matters (PM) have been closely associated with adverse health effects such as respiratory disease and cardiovascular diseases. Previous studies have examined the adverse health effects associated with short- and long-term exposure to AAP and outdoor PM on respiratory disease. However, the effect of PM size ($PM_{2.5}$ and PM_{10}) on cardiovascular disease has not been well studied. Thus, it remains unclear how the size of the inhalable particles (coarse, fine, or ultrafine) affects mortality and morbidity. Airborne PM concentrations are commonly used for ambient air quality management worldwide, owing to the known effects on cardiorespiratory health. In this article, we assess the relationship between cardiovascular diseases and PM, with a particular focus on PM size. We discuss the association of $PM_{2.5}$ and PM_{10} , nitrogen dioxide (NO_2), and elemental carbon with mortality and morbidity due to cardiovascular diseases, stroke, and altered blood pressure, based on epidemiological studies. In addition, we provide evidence that the adverse health effects of AAP and PM are more pronounced among the elderly, children, and people with preexisting cardiovascular and respiratory conditions