

AIR QUALITY INDEX AND INCREASED ACUTE MYOCARDIAL INFARCT ADMISSION TO HOSPITAL IN MELBOURNE, AUSTRALIA

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Background and Aims: The health effects of the air pollutants have been known for many years, as has the interaction effect between air pollution and climate with respect to human health. In Australia, air pollution levels are generally lower than those observed in the US and Europe. Recent work in Melbourne has indicated that ambient air pollution in these cities is making significant contributions to daily mortality and hospital admissions for cardiovascular and respiratory disease. The aim is to determine whether the observed pattern of increased acute myocardial admissions (AMI) in Melbourne can be explained by air pollution.

Method: A One-Way ANOVA and Pearson's correlation was used to examine the relationship between daily AMI admissions and daily maximum air quality index (AQI). Daily AQI was categorised into five groups. A CHAID decision tree was used to determine which environmental variables showed the strongest relationship with AMI admissions.

Results: The results of the correlation analysis suggested a weak correlations between air quality and meteorological variables and AMI admissions, although these relationships are significant at $p = 0.01$ level. Results of the ANOVA indicated AMI admissions are significantly different on days when AQI is rated as Fair or Poor. The relationship is present at day 0 and lags of 1-3 days. The strongest relationship is at day 0. AQI maximum was the single most important variable in explaining the AMI admissions rate in Melbourne.

Conclusions: In this study in Melbourne, patterns are consistent with urban air pollution and urban meteorology impacts on health described by others. Days with poorer air quality appear to be associated with increased numbers of AMI admissions.