Journal of Advanced Research in Medicine
International Conference on Current Challenges in Occupational and Environment Health
28th - 30th November 2023

A Systematic Review of Cohort Studies to Assess the Relationship Between PM 2.5 Levels and Glycemic Markers

Radhikaa Sharma[1], Subham[1], Ananya Ray Laskar[1], Anita S. Acharya[1], Jyoti Khandekar[1], Tanmay Talukdar[2]

[1]Department of Community Medicine, Lady Hardinge Medical College.
[2]Department of Pulmonary Medicine, Lady Hardinge Medical College.

Email Id: ananya.ray.laskar@gmail.com

Abstract

Introduction: The role of environmental pollution in health systems is ever-evolving and yet to be completely understood. Exposure to ambient fine particulate matter (PM2.5), in particular, has become a cause of public health concern due to its impact on morbidity and mortality. The incidence of type 2 diabetes is also rising globally, with several risk factors attributed to it. A systematic review was conducted to see the effect of PM 2.5 concentrations on mean change in glycemic markers.

Material and Methods: Articles were identified through Cochrane database, EMBASE, Google Scholar and PubMed, and relevant reference lists. Keywords such as Particulate matter, PM 2.5, air pollutants, insulin resistance, impaired glucose resistance, type 2 diabetes, cohort, longitudinal, observational were used. Cohort studies in adults assessing the change in mean FBS and/or mean HbA1c associated with change in mean PM 2.5 concentration were selected in the English language. The data was analysed using CMA (version 4) Software and summary effects were analysed and presented in the form of forest plot.

Results: A total of 755 articles were found using relevant keywords. On the basis of title of the study, 155 articles were included after removing duplicates. After perusing the abstracts, a total of 15 articles were selected based on our selection criteria. Preliminary analysis shows a significant temporal relationship between PM 2.5 and impairment in glycemic markers, the detailed analysis of which is ongoing.

Conclusion: Significant association between PM 2.5 and glycemic marker impairment is noted. Measures to reduce air pollution exposure may have a significant impact on diabetes status.