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Air Pollution Induced Asthma and Alterations in Cytokine Patterns

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Abstract:

In recent decades, clinicians and scientists have witnessed a significant increase in the prevalence of allergic rhinitis and asthma. The factors underlying this phenomenon are clearly complex; however, this rapid increase in the burden of atopic disease has occurred in parallel with rapid industrialization and urbanization in many parts of the world. Consequently, more people are exposed to air pollutants than at any point in human history. Worldwide increases in allergic respiratory disease have mainly been observed in urban communities. Epidemiologic and clinical investigations have suggested a strong link between particulate air pollution and detrimental health effects, including cardiopulmonary morbidity and mortality. The purpose of this review is to provide an evidence-based summary of the effects of air pollutants on asthma, focusing on particulate matter PMs, diesel exhaust particles (DEPs), and ozone as major air pollutants. An overview of observational and experimental studies linking these pollutants with asthma will be provided, followed by consideration of the mechanisms underlying pollutant induced immune response and inflammation. The cytokine response will be viewed in depth and a brief discussion of future research and clinical directions is provided.

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