Environmental exposures associated with asthma in children and adults.

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Introduction

Asthma is a chronic respiratory condition that affects millions of people worldwide, and its prevalence has been increasing over the past few decades. While the exact causes of asthma are not fully understood, it is widely accepted that environmental exposures can play a significant role in its development and exacerbation. Environmental exposures associated with asthma can include a wide range of factors such as air pollution, allergens, and occupational exposures. In this article, we will explore the various environmental exposures associated with asthma in children and adults [1].

Air pollution

Air pollution is a major environmental exposure that can have a significant impact on respiratory health, including the development and exacerbation of asthma. Air pollution can come from various sources, including traffic, industrial activities, and wildfires. Several studies have linked exposure to air pollution with the development of asthma in children. For example, a study published in the Journal of Allergy and Clinical Immunology found that children exposed to higher levels of particulate matter (PM2.5) and nitrogen dioxide (NO2) were more likely to develop asthma than those with lower levels of exposure. Similarly, in adults, exposure to air pollution has been linked to the exacerbation of asthma symptoms. A study published in the American Journal of Respiratory and Critical Care Medicine found that short-term exposure to high levels of air pollution was associated with an increase in hospital admissions and emergency department visits for asthma [2].

Allergens

Allergens are another environmental exposure that can play a significant role in the development and exacerbation of asthma. Allergens can come from a variety of sources, including pets, dust mites, mold, and pollen. Exposure to allergens can trigger an immune response in the body, leading to inflammation in the airways and the development of asthma symptoms. For example, a study published in the Journal of Allergy and Clinical Immunology found that exposure to house dust mites was associated with an increased risk of developing asthma in children. Similarly, in adults, exposure to allergens can trigger asthma symptoms and exacerbate existing asthma. A study published in the Annals of Allergy, Asthma & Immunology found that exposure to cat allergens was associated with increased asthma symptoms in adults with cat allergies [3].

Occupational exposures

Occupational exposures can also play a role in the development and exacerbation of asthma. Certain industries, such as agriculture, manufacturing, and healthcare, can expose workers to various respiratory irritants and allergens, which can trigger asthma symptoms. For example, a study published in the Journal of Occupational and Environmental Medicine found that exposure to cleaning products and disinfectants was associated with an increased risk of developing asthma in healthcare workers. Similarly, in industries such as agriculture, exposure to dust, pesticides, and other respiratory irritants can lead to the development of asthma. A study published in the American Journal of Respiratory and Critical Care Medicine found that exposure to agricultural dust was associated with an increased risk of asthma in farmers [4].

Preventing environmental exposures

Preventing environmental exposures associated with asthma is crucial for reducing the risk of developing asthma and exacerbating existing asthma symptoms. There are several strategies that individuals can use to reduce their exposure to environmental factors that can trigger asthma symptoms. One effective strategy is to reduce exposure to indoor allergens such as dust mites, pet dander, and mold. This can be achieved through regular cleaning and maintenance of indoor spaces, including vacuuming carpets and washing bedding regularly. Another effective strategy is to reduce exposure to outdoor air pollution by avoiding high traffic areas and staying indoors during periods of high pollution. Using air purifiers and maintaining good ventilation in indoor spaces can also help reduce exposure to air pollutants.

In addition to these strategies, individuals can also take steps to reduce their exposure to occupational respiratory irritants and allergens by wearing appropriate protective equipment, such as masks and respirators, and following proper safety protocols in the workplace. It is also important to note that public policies and regulations can play a critical role in reducing environmental exposures associated with asthma. For example, regulations on air pollution and industrial emissions can help reduce exposure to respiratory irritants and pollutants in the environment. Furthermore, policies promoting the use of renewable energy sources and reducing reliance on fossil fuels can also help reduce air pollution and improve respiratory health [5].

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Conclusion

Environmental exposures associated with asthma can have a significant impact on respiratory health in both children and adults. Strategies to reduce exposure to allergens, air pollution, and occupational respiratory irritants can help reduce the risk of developing asthma and exacerbating existing asthma symptoms. Moreover, public policies and regulations can play a critical role in reducing environmental exposures and promoting respiratory health. By implementing effective strategies and policies, we can work towards a future where asthma is less prevalent and respiratory health is improved for all.

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