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Thunderstorm-related asthma: what happens and why.

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Abstract

The fifth report issued by the Intergovernmental Panel on Climate Change forecasts that greenhouse gases will increase the global temperature as well as the frequency of extreme weather phenomena. An increasing body of evidence shows the occurrence of severe asthma epidemics during thunderstorms in the pollen season, in various geographical zones. The main hypotheses explaining association between thunderstorms and asthma claim that thunderstorms can concentrate pollen grains at ground level which may then release allergenic particles of respirable size in the atmosphere after their rupture by osmotic shock. During the first 20-30 min of a thunderstorm, patients suffering from pollen allergies may inhale a high concentration of the allergenic material that is dispersed into the atmosphere, which in turn can induce asthmatic reactions, often severe. Subjects without asthma symptoms, but affected by seasonal rhinitis can also experience an asthma attack. All subjects affected by pollen allergy should be alerted to the danger of being outdoors during a thunderstorm in the pollen season, as such events may be an important cause of severe exacerbations. In light of these observations, it is useful to predict thunderstorms and thus minimize thunderstorm-related events.