Correspondence

Thunderstorm-related asthma: Not only grass pollen and spores

To the Editor:

In the September 2007 issue of the Journal, Pulimood et al[1] suggest sensitization to *Alternaria* species to play a key role in thunderstorm-related asthma. In the editorial of the same issue, Marks and Bush[2] provide a review of environmental factors involved in asthma epidemics, listing 4 necessary conditions to make them possible.[2] In the list they cited fungal spores and grass pollen as the unique airborne allergens (points 1, 2, and 3) that are implicated in the pathogenesis of thunderstorm-related asthma. This is not completely true. During the episode registered in Naples on June 4, 2004 (between 1:30 and 2:00 AM), 6 adults (3 women and 3 men between 38 and 60 years old) and a girl of 11 years had attacks of severe bronchial asthma, and the attack was nearly fatal in one case.[3,4] This is the first report of thunderstorm-related asthma in the Mediterranean area. All patients received treatment in emergency departments, and one was admitted to an intensive care unit for very severe bronchial obstruction and acute respiratory insufficiency. All subjects were outdoors when the thunderstorm struck. None of the 7 subjects regularly took antiallergy drugs, antiasthma drugs, or both, confirming the findings of Pulimood et al.[1] Four had a history of asthma, whereas 2 had a history of only rhinitis. We found that all 7 patients were sensitized, with allergic respiratory symptoms on exposure, to *Parietaria* species pollen but were not sensitized to grasses or other aeroallergens, such as other pollen grains and molds.[3,4] *Parietaria* species is an urticacea weed that is widespread in the Naples and Mediterranean area, with a spring and summer pollen season in part contemporaneous with that of grasses.[5,6] During the thunderstorm, the concentration of airborne *Parietaria* species pollen grains was particularly high, with a peak of 144 grains/m^3 being recorded on June 3, whereas airborne concentrations of grasses and *Alternaria* species were very low. Air pollution levels for both gaseous and particulate components based on the hourly concentrations of nitric dioxide, ozone, and respirable particulate matter were not particularly high in Naples on June 3 and 4. There is clear evidence that *Parietaria* species pollen was a risk factor for an asthma epidemic during the thunderstorm in Naples, with a close temporal association between the arrival of the thunderstorm, a major increase in the concentration of *Parietaria* species pollen grains, and the onset of the epidemic.

We completely agree with Marks and Bush[2] about the "4 necessary conditions" for asthma epidemics, but more than fungal spores and grass pollen have to be taken into consideration. The same mechanisms might involve other pollen grains in different geographic areas, depending on the seasonality of thunderstorms and allergenic pollen.

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