

Use of Humidifiers with Children Suffering from Atopic Dermatitis

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DEAR EDITOR

Following the recent press release regarding the toxicity of the biocides mixed in the water of humidifiers as a cause of fatal pulmonary syndrome among pregnant women and young children in Korea [1], the use of humidifiers has become a public concern. There are few reports, however, on the use of humidifiers with children suffering from atopic dermatitis. Those children use humidifiers more frequently than healthy individuals, because their symptoms largely depend on the humidity in the environment, especially during winter in Korea. Therefore, they might be a risk group who are exposed to the biocides in the humidifiers. Parents of atopic dermatitis patients are more aware of controlling the relative humidity in the household environment. It is important to know how many of the children with atopic dermatitis have been exposed to humidifiers during their periods of illness, because they are more sensitive to environmental changes.

We have reviewed the children's environmental health status questionnaire used in the Environmental Health Center for Atopic Diseases in the Samsung Medical Center. When children with atopic dermatitis visited the clinic, it was recommended that their parents complete the questionnaire on the children's environment, including housing, home environment, use of a humidifier, and use of pesticides and chemicals at home, etc. Although the exact time period of reference is not clarified, it can be supposed to reflect the usage at the time of survey. Because of unbalanced distribution across the year, the proportion of humidifiers used is presented on a seasonal basis.

Among 375 subjects aged between 3 and 12 (218 boys and 157 girls), 179 (54.3%) children used a humidifier, while 106 (34.5%) children used an air cleaner at home. Compared to a survey on the general population (37.2%) [2] and pregnant mothers (27.6%) [3], atopic children's use of humidifiers was more popular than those population groups. There was a strong seasonal difference. Unlike the usage in

the general population [2], the season with the highest usage of humidifiers in patients with atopic dermatitis was spring, followed by fall (Table 1). Use of air cleaners was also highest in spring, but was similar across the other three seasons.

Although the study population was not representative and use of biocides was not included in the questionnaire, this result may be used to estimate the hazard of humidifier use in children with atopic dermatitis. This report shows that atopic children are exposed to humidifier aerosols much more than the general population. Parents need to be alert about the potential risk of inhaling undesirable components such as endotoxin and minerals that can be included in the water used in humidifiers.

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Table 1. Usage of humidifiers and air cleaners in houses of children with atopic dermatitis

| | Season | | | | Total (n=307) | p-value |
|-------------|----------------|---------------|-------------|---------------|---------------|---------|
| | Spring (n=141) | Summer (n=49) | Fall (n=31) | Winter (n=86) | | |
| Humidifier | 99 (70.2) | 20 (40.8) | 20 (64.5) | 40 (46.5) | 179 (58.3) | <0.001 |
| Air cleaner | 60 (42.6) | 14 (28.6) | 9 (29.0) | 23 (26.7) | 106 (34.5) | 0.057 |

Values are presented as number (%).