

Research Article



# Association between use of humidifier disinfectant and allergic rhinitis in Korean children: a cross-sectional study based on the eighth Panel Study on Korean Children (PSKC)

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Abbreviations

AD: atopic dermatitis; AR: allergic rhinitis; CAPI: computer assisted personal interviewing; CI: confidence interval; CMIT: chloromethylisothiazolinone; HD: humidifier

## ABSTRACT

**Background:** Rhinitis was the most frequently diagnosed disorder among users of humidifier disinfectants (HDs). The aim of our study was to investigate on the relationship between allergic rhinitis (AR) and HD uses.

**Methods:** Our study used the data from the eighth Panel Study on Korean Children; a total of 1,540 participants were enrolled. The  $\chi^2$  test and multiple logistic regression analyses were conducted to debunk the association between AR and HD uses.

**Results:** In our analysis, odds ratios (ORs) of doctor-diagnosed AR increased significantly when simply the response of whether HDs were used in the past was considered. When the brands of HD were considered, ORs of doctor-diagnosed AR were found to be increased significantly for those who have used polyhexamethylene guanidine phosphate/oligo(2-[2-ethoxy]-ethoxyethyl)guanidinium-containing HDs (model 3: 1.41, 95% confidence interval [CI]: 1.02–1.95). However, once duration of usage was additionally considered, ORs of doctor-diagnosed AR increased significantly only for those who have used chloromethylisothiazolinone/methylisothiazolinone-containing HDs for more than or equal to 3 months (model 3: 2.08, 95% CI: 1.17–3.69). Further, past use of HD was associated with significantly increased ORs of AR diagnosed before 2013 (model 3: 1.35, 95% CI: 1.02–1.79).

**Conclusions:** Results of our study suggest that past uses of HDs may be associated with an increased risk of AR.

**Keywords:** Humidifier disinfectant; Allergic rhinitis; Environmental chemicals; PSKC; Children

## BACKGROUND

In the spring of 2011, atypical cases of severe lung injury among a group of young adults were reported in Korea [1]. Epidemiological investigations that followed found that various humidifier disinfectants (HD) were the culprits; after the ban in 2011, no additional case of HD lung injury (HDLI) was detected [2].





















