Exposure to ambient PM10 and nitrogen dioxide and ADHD risk: A reply to Min & Min (2017).

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Abstract

Min and Min (2017) conducted an epidemiological investigation that revealed further support of a link between exposure to air pollution and risk for attention-deficit hyperactivity disorder (ADHD) in childhood. We have previously reported that exposure to the agricultural and combustion pollutant, nitrous oxide (N2O), may be a primary environmental trigger in the onset of neurodevelopmental disorders, like ADHD and autism spectrum disorders. In order to validate our prior work pointing to an association between farm use of nitrogen fertilisers and a severe ADHD phenotype, we have utilised a different statistical approach (i.e., Poisson regression methodology) including two-way fixed effects. The results reported in this correspondence indicate that for a one-log unit increase in the farm use of nitrogen fertilisers, hospitalisation risk for ADHD and conduct disorders increases by a factor of 1.16 (p<0.017), which was a statistically significant increase in risk after multiple pollutant comparison corrections. Exposure to PM10 and NOx in this analysis was not associated with an increased risk of hospitalisation for ADHD and conduct disorder. We are able to validate our prior conclusions and, therefore, suggest that future analyses dedicated to improving the literature on the association between air pollution and risk of ADHD take into account environmental emissions of N2O.