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CORRESPONDENCE

Mould exposure and COPD outcomes: Association or causation?*Dear Editor,*

Kosmidis and colleagues have revealed an association between activities related to mould exposure and the medical visits and antibiotic usage in individuals with chronic obstructive pulmonary disease (COPD).¹ However, it is essential to note that their study is based on a questionnaire survey, and thus, the relationship between the two remains a mere correlation and cannot be considered causal.

To demonstrate that the relationship between mould exposure and COPD outcomes is causal, it is necessary to reconstruct the research design using Bradford Hill's criteria. Bradford Hill's criteria is a classical method to evaluate whether a factor is related to the onset of a particular disease.² Specifically, it consists of nine items: strength, consistency, specificity, temporality, biological gradient, plausibility, coherence, experiment, and analogy. Amongst these criteria, their study lacks sufficient verification in the aspects of temporality, biological gradient, and coherence.

Firstly, regarding "temporality," incorporating questions about the timing of COPD onset and mould exposure into the survey could potentially resolve this issue. Secondly, concerning "biological gradient," a more quantitative investigation into the frequency of both mould exposure and COPD outcomes might resolve this issue, but it would require more individuals with COPD. Lastly, regarding "coherence," it is necessary to investigate whether avoiding mould exposure leads to a reduction in COPD outcomes. As a more straightforward approach, researchers could also consider studying whether COPD outcomes decrease with masque-wearing. Although there is a debate about the effectiveness of masque-wearing,^{3,4} many people wore masks to prevent the spread of infection during the pandemic of coronavirus disease 2019. Thus, examining whether the frequency of COPD

outcomes changed during this period might indirectly provide clues about the causal relationship between mould exposure and COPD outcomes.

If these processes can determine whether the association between mould exposure and COPD outcomes is not just a mere correlation but a causal relationship, it could make it easier to formulate strategies for reducing COPD outcomes. I hope their study will be conducted with a larger sample size and more detailed questionnaire items.

Conflicts of interest

The author declares no potential conflicts of interest.

Authors contribution

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