Asthma and antihistamine medicine use is associated with biomarker of exposure to smoking in a wastewater-based epidemiology (WBE) study in China

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Wastewater-based epidemiology: what is it?

Air pollution and smoking issues in China

Air pollution is serious in China

Smoking is also highly prevalent

We aimed to utilise WBE to assess the association between the level of air pollution, exposure to smoking and the proxies of disease occurrences

MATERIALS AND METHODS

✓ Air quality data: daily 24-hour average concentrations of $PM_{2.5}$, PM_{10}, SO_2, CO, and NO_2 and the maximum 8-hour mean concentration of O3 of the monitored catchment between November 1, 2017, and October 31, 2018

✓ Meteorological data: daily mean ambient temperature, relative humidity, and rainfall data were collected

✓ Wastewater collection: daily 24-hour composite sewage samples were collected from a treatment plant serving 500,000 people and analysed for the following biomarkers:

- Exposure to smoking (first + second hand): cotinine
- Asthma medicine use: salbutamol
- Antihistamine medicine use: cetirizine, fexofenadine, loratadine
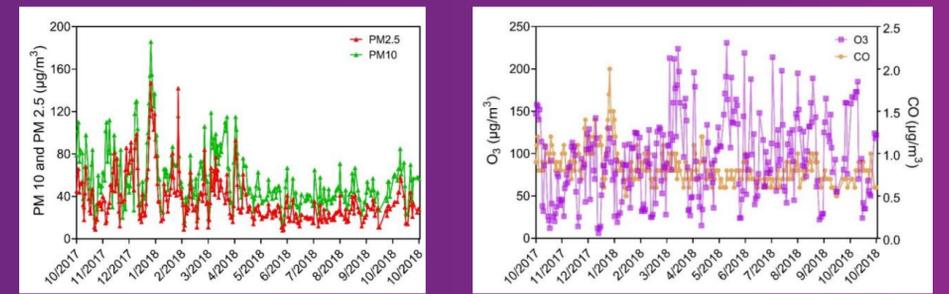
RESULTS

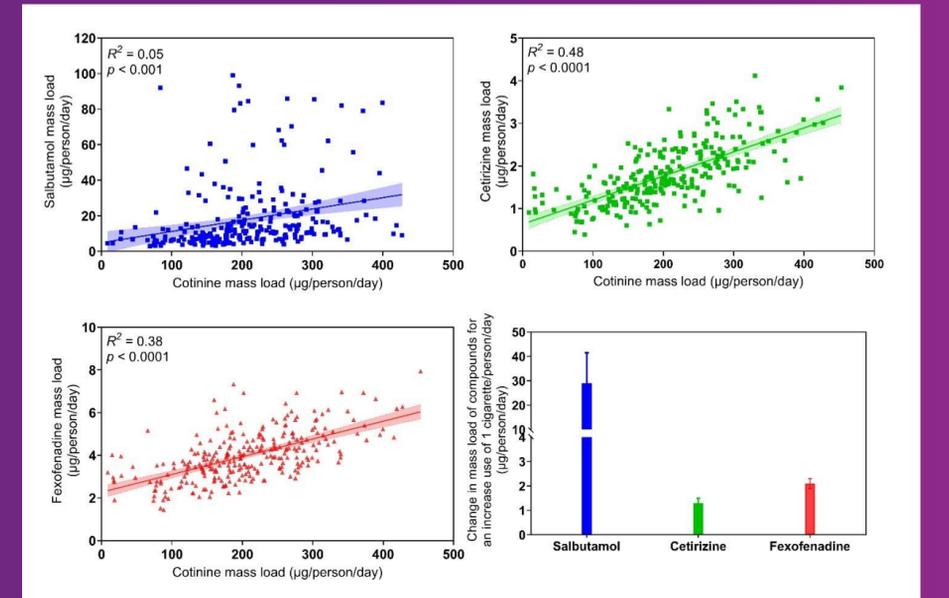**Fig. 1**. Daily concentration of air pollutants during the study period.

Fig. 2. Association of smoking and biomarkers of medicine (95%CI)

Preliminary findings: We found a strong positive association between proxies of smoking exposure and use of asthma/antihistamine medicines. No such association was observed with exposure to different ambient air pollutants

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