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| **Air Pollution is Linked to Interstitial Lung Disease Health Outcomes** |
| Doris Lan 1,2,3, Caitlin C. Fermoyle1,2,3, Lauren K. Troy 1,2,3, Luke D. Knibbs 3,4,5 , Tamera J. Corte 1,2,3 |
| *1Central Clinical School, Faculty of Medicine and Health, The University of Sydney, NSW, Australia, 2Department of Respiratory and Sleep Medicine, Royal Prince Alfred Hospital, NSW, Australia, 3National Health and Medical Research Council (NHMRC), Centre of Research Excellence in Pulmonary Fibrosis, NSW, Australia, 4School of Public Health, Faculty of Medicine and Health, The University of Sydney, NSW, Australia, 5Public Health Research Analytics and Methods for Evidence (PHRAME), Public Health Unit, Sydney Local Health District, NSW, Australia* |
| **Introduction/Aim:** A limited number of individual studies have suggested an association between interstitial lung disease (ILD) and outdoor air pollution, both for the development of the disease, and driving disease progression. We performed a comprehensive literature review of associations between air pollution and ILD, including idiopathic pulmonary fibrosis (IPF), aiming to summarise the evidence and identify knowledge gaps. **Methods:** We systematically searched six online databases. Eighteen of 24 selected studies were critically appraised for risk of bias using the Newcastle-Ottawa Scale (NOS). Meta-analyses were conducted when at least three or more studies investigated the same pollutant and health outcome, using random effects models. We assessed the estimated Risk Ratios (RRs) for acute exacerbations (AE)-IPF in relation to exposure to every 10 μg/m³ increment in air pollutant concentrations, including ozone (O3), nitrogen dioxide (NO2), particulate matter with diameter ≤10µm (PM10), and ≤2.5µm (PM2.5).**Results:** 24 observational studies conducted in 13 countries or regions were identified. Studies assessed by NOS demonstrated good to high quality. Pollutants under investigation encompassed O3, NO2, PM10 and PM2.5, sulfur dioxide (SO2), carbon monoxide (CO), nitric oxide (NO) and nitrogen oxides (NOx). The meta-analysis revealed a significant association between the increased risk of AE-IPF in PM2.5, yielding RR 1.94 (95% CI 1.30-2.90; p=0.001). However, the link between O3, NO2 and PM10 and the risk of AE-IPF remained uncertain (Fig1). Overall, findings across all the included studies suggest that increased exposure to air pollutants may be linked to a range of health issues in individuals with ILDs. **Conclusion:** A scarcity of available studies on the relationship between air pollutants and ILD underscores the imperative for further comprehensive research in this domain. The available data suggest that reducing levels of PM2.5 in the atmosphere could potentially reduce AE frequency and severity in ILD patients.**Grant Support:**This work was funded by the Centre of Research Excellence in Pulmonary Fibrosis, which is funded by the NHMRC (GNT1116371 and GNT2015613), Lung Foundation Australia, anonymous philanthropy and Foundation partner Boehringer Ingelheim.**Key Words:** air pollution, interstitial lung disease, PM2.5**Word count**: 297Please nominate:Poster Oral Either Tracey Robinson **☒**xx |