P696 Ambient air quality as risk factor for microscopic colitis – a Geographic Information System study

Verhaegh B.P.M.[*1,2], Beijnens E.M.[3], van den Heuvel T.R.A.[1], Goudkade D.[4], Zeegers M.P.[2,5], Nawrot T.S.[3], Masclee A.A.M.[1,2], Jonkers D.M.A.E.[1,2], Pierik M.J.[1]
[1]Maastricht University Medical Center+, Internal Medicine - Division of Gastroenterology-Hepatology, Maastricht, Netherlands [2]Maastricht University Medical Center+, NUTRIM, School of Nutrition and Translational Research in Metabolism, Maastricht, Netherlands [3]Hasselt University, Center for Environmental Sciences, Diepenbeek, Belgium [4]Maastricht University Medical Center+, Pathology, Maastricht, Netherlands [5]Maastricht University Medical Center+, Complex Genetics, Cluster of Genetics and Cell Biology, Maastricht, Netherlands

Background
Microscopic colitis is a chronic inflammatory disorder of the colon with watery diarrhea as main symptom. The pathophysiology is not completely understood. Smoking has found to be an incontestable risk factor for MC. Furthermore, the older age of onset suggests a contributive role for environmental factors. Considering the compositional overlap between cigarette smoke and polluted air, and the negative impact of air pollution on mortality, hospitalizations and various chronic disorders, we aimed to assess the association between ambient air quality and the risk of MC in a large cohort of MC patients from South Limburg, the Netherlands.

Methods
A case-control study was performed. MC cases, diagnosed between 2000 and 2012 within South Limburg, were retrieved from the national pathology registry and matched to non-MC controls from the general population, based on age (±2 years) and gender. The index date of the cases was defined as the date of diagnosis, controls were assigned the same index date as their matched case. All included subjects had a stable residential address for ≥3 years at index date. (In)direct markers for residential ambient air quality, including: air pollution compounds, land use, road length, distance to major roads, and demography were determined using a Geographic Information System (GIS). Univariate and multivariable analyses were performed and corrected for age, gender and smoking status.

Results
In total, 345 MC cases (78.6% female) and 583 (matched) controls (77.2% female) were included. Biopsy specimens were revised to confirm the diagnosis in 318 (92.2%) of the cases. In total, 123 (35.6%) CC, 188 (54.6%) LC and 34 (9.8%) MCi cases were included. Univariate, percentage of urban green (<500m), distance to the nearest highway, and average benzene concentration were associated with MC (p<0.10). The latter remained significant in the multivariable model (OR 4.41, 95%-CI 1.23–15.78). A higher age (OR 1.02; 95%-CI 1.01–1.04) and current smoking (OR 4.39, 95%-CI 3.07–6.28) were also significantly associated with MC. A sensitivity analyses, only including biopsy proven CC and LC cases, showed the same results.

Conclusion
This is the first study that systematically assessed the relationship between ambient air quality and MC, but did not reveal significant associations. Despite the equal exposure to air pollution observed in cases and controls, a contributory role for ambient air pollution in MC pathophysiology could not completely excluded. A genetic susceptibility in MC

cases to react upon the same levels of exposure compared to non-MC controls, might still be present. Comparable studies in different populations are warranted in order to validate the current findings.