CHLORINATION DISINFECTION BY-PRODUCTS AND RISK OF STILLBIRTHS AND CAUSE-SPECIFIC STILLBIRTHS IN ENGLAND AND WALES

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Background and Objective: We investigated the association between still births and Trihalomethanes (THM) concentrations in tap water across a large population residing in 12 regions of England and Wales.
The study data cover the period 1993 – 2001 and include 2.79 million births with 14,265 stillbirths.
Two cause-specific subgroups of stillbirths, as defined by Wigglesworth codes, were also investigated.
Trihalomethanes are one of the main groups of disinfection byproducts and are widely used in epidemiological studies as a marker for DBPs as they are routinely collected by the water companies.
Methods: Routinely collected THM data from each water company were modelled using a hierarchical mixture model.
The modelled individual and total THM concentrations for the final trimester of the pregnancy were categorized into one of three predefined exposure categories and linked to the outcome data via the postcode of the maternal birth address.
Logistic regression was carried out with maternal age, split into 5 categories, and deprivation, as measured by quintiles of the Carstairs Index, included in the model as confounders.
Results: Analyses were conducted to investigate the relationship between total THMs and risk of stillbirths. Further analyses using individual THMs and also the cause specific subgroups of stillbirths were also undertaken. Full results will be presented.
Conclusion: This is the largest study to date worldwide. Previous studies have shown inconsistent evidence for the association between stillbirths and trihalomethanes.
Concern remains of the possible adverse impact of disinfection by products on births outcomes due to the large population at risk. More detailed exposure assessment including information on water consumption, showering and swimming diaries and, in particular, the use of urinary biomarkers is recommended to move this important field of research forward.