

Mortality of mothers with opioid-use during pregnancy: an international comparison using linked mother-baby records for England and Ontario

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Introduction

Opioid-use during pregnancy is indicative of future adversity for mothers and children. We aimed to investigate neonatal abstinence syndrome (NAS) as a marker of drug-use in pregnancy and to compare maternal all-cause mortality relative to those with infants born without NAS in two high prevalence jurisdictions; England and Ontario.

Objectives and Approach

We developed two parallel cohorts using linked mother-baby records for all births in hospitals in England and Ontario between 2002 and 2013. Mothers with opioid-use were identified based on NAS recorded in the baby's record. Maternal mortality within 10 years of delivery was compared for mothers with and without a NAS-pregnancy. The association between opioid-use in pregnancy and all-cause mortality was modelled using Cox regression. In addition, we estimated the unadjusted cumulative incidence of cause-specific mortality within a competing risks framework. Harmonised clinical codes were used to define all exposures, outcomes and comorbidities.

Results

The study population comprised 13,581 and 4,966 NAS mothers in England and Ontario, respectively. Controls totalled 4,205,941 for England and 929,985 for Ontario. The crude hazard ratios for all-cause mortality were 12.1 (95% CI; 11.1-13.2) for England and 11.4 (9.7, 13.4) for Ontario, which were attenuated to 9.8 (9.0-10.6) and 9.0 (7.6, 10.7) respectively, after adjustment for maternal age at delivery and Charlson comorbidity index. The cumulative incidence of death was much higher among NAS mothers than controls for all causes except cancer in the English cohort, where estimates were similar. The majority of deaths within the NAS group were attributable to avoidable causes, particularly reflecting unintentional injuries (cumulative incidence of 19.6 (16.6-23.1) for England and 13.9 (9.7-19.3) for Ontario).

Conclusion/Implications

Our approach demonstrates the utility of mother-baby record linkage to examine long-term health outcomes of vulnerable families. We identified similarly high mortality rates among the mothers of NAS babies in both England and Ontario, indicating a need for public health programs to target support to mothers as well and infants.

