Abstract

We examined prospective cohort studies evaluating the relation between prenatal and neonatal exposure to polychlorinated biphenyls (PCBs) and neurodevelopment in children to assess the feasibility of conducting a meta-analysis to support decision making. We described studies in terms of exposure and end point categorization, statistical analysis, and reporting of results. We used this evaluation to assess the feasibility of grouping studies into reasonably uniform categories. The most consistently used tests included Brazelton's Neonatal Behavioral Assessment Scale, the neurologic optimality score in the neonatal period, the Bayley Scales of Infant Development at 5-8 months of age, and the McCarthy Scales of Children's Abilities in 5-year-olds. Despite administering the same tests at similar ages, the studies were too dissimilar to allow a meaningful quantitative examination of outcomes across cohorts. These analyses indicate that our ability to conduct weight-of-evidence assessments of the epidemiologic literature on neurotoxicants may be limited, even in the presence of multiple studies, if the available study methods, data analysis, and reporting lack comparability.

Keywords

Domain, Function testing, Meta-analysis, Neurodevelopment, Neurotoxicants, PCBs, Risk assessment, Weight of evidence.