Benzene and Leukemia

Benzene is a highly volatile aromatic hydrocarbon solvent which is present in most petroleum distillates such as Stoddard solvent and mineral spirits. Recent advances in the purification process for these solvents has reduced the benzene content significantly, but it is still present in products such as WD-40 and Liquid Wrench as well as many solvents used in the printing industry and elsewhere. In the 1950s and into the 1960s, benzene content in some of these solvents was as high as 5 to 15%. Benzene is also a significant component of gasoline and other fuels and is used extensively in various manufacturing processes.

Acute exposure to benzene results in the usual symptomatology from excess solvent exposure including dizziness, drowsiness, rapid heart rate, headaches, tremors, confusion, unconsciousness, and death. While these symptoms are certainly quite serious, exposures to low levels of benzene for just a few years can result in a series of blood dyscrasias which are caused by attack of the blood-forming elements including the bone marrow. Early indicators of these hemotoxic problems include anemias, leukopenias, thrombocytopenias, aplastic anemias, and pancytopenias. While many of these conditions may be considered as part of what is called myelodysplastic syndrome, they also may progress to even more serious leukemias and lymphomas. Most commonly, benzene exposure has been associated causally with acute myelogenous leukemia (AML). This condition may also be referred to as acute myeloblastic leukemia, acute myelocytic leukemia, acute granulocytic leukemia, and acute non-lymphocytic leukemia. Other types of leukemia including chronic myelogenous leukemia (CML), acute lymphocytic leukemia (ALL), and chronic lymphocytic leukemia (CLL) have been linked to benzene exposure. Non-Hodgkin’s Lymphomas (NHL), Hodgkin’s disease, and multiple myelomas also are related to benzene exposure.

Dr. Parent has written several causation reports relating benzene exposure to various leukemias, pre-leukemias, and lymphomas. These reports address the Hill Criteria for establishing causation and have passed Daubert challenges. An example of an earlier causation report follows.

* View Report

Selected References


Beach, J. and Burstyn, I., Cancer risk in benzene exposed workers. Occupational and Environmental Medicine, 63(1), 71-72 (2006).


Heineman, E. F., Olsen, J. H., Pottern, L. M., Gomez, M., Raffn, E. and Blair, A.,


Wong, O. and Raabe, G. K., Multiple myeloma and benzene exposure in a multinational cohort of more than 250,000 petroleum workers. Regulatory Toxicology and Pharmacology, 26, 188-199 (1997).

Wong, O., Risk of acute myeloid leukaemia and multiple myeloma in workers exposed to benzene. Occupational and Environmental Medicine, 52(6), 380-384 (1995).