High incidence of brain and other nervous system cancer identified in two mining counties, 2001-2015

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Highlights

- When compared the incidence rates of brain and other nervous system cancers in Deer Lodge and Silver Bow to US rates, they were not significantly different.
- Increased incidence rate of brain and other nervous system cancers was found in two mining counties, compared to the rate of remaining 54 counties in Montana.
- Heterogeneity of incidence rate ratio found by age groups: high risk for the 0-4 year age group and the 30-34 age group in Deer Lodge and Silver Bow.

Abstract

Two counties in Montana, Deer Lodge and Silver Bow (DL/SB), have two Superfund sites, as well as an active copper and molybdenum mine in SB. The population living in proximity to these sites are exposed to additional metals and some have been shown

to be neurotoxic, especially for children; thus, this study focused on the incidence of brain and other nervous system cancers. The Montana Central Tumor Registry data was used to identify the cases in DL/SB and the remaining 54 counties of Montana (comparison group). After controlling for sex, cancer stage, and year of diagnosis, we found an incidence rate ratio for DL/SB versus comparison group of 6.28 (95% CI: 2.32 – 17.02) for children ages birth to 4 years, and 3.95 (95% CI: 1.66 – 9.38) for adults age 30-34 years. The high incidence rate of the brain cancer in the two age groups requires public health action.

Keywords

Brain and other nervous system cancer
Incidence
Deer Lodge and Silver Bow