

In male workers, the SMRs were close to 1 for most of the causes of death when compared to both the U.S. and the Minnesota death rates. When latency and duration of employment were considered, there were no elevated SMRs. When employee deaths in the Chemical Division were compared to Minnesota death rates, the SMR for prostate cancer for workers in the Chemical Division was 2.03 (95% CI .55 - 4.59).

The SMR for prostate cancer for workers in the Chemical Division was 2.03 (95% CI .55 - 4.59). This was based on 4 deaths (1.97 expected). There was also a statistically significant association with length of employment in the Chemical Division and prostate cancer mortality. Based on the results of proportional hazard models, the relative risk for a 1-year increase in employment in the Chemical Division was 1.13 (95% CI 1.01 to 1.27). It rose to 3.3 (95% CI 1.02 -10.6) for workers employed in the Chemical Division for 10 years when compared to the other employees in the plant. The SMR for workers not employed in the Chemical Division was less than expected for prostate cancer (.58).

Study strengths: Vital status was determined for 100% of the cohort.

Study weaknesses: There was a potential for misclassification of exposure because many of the non-Chemical Division employees may have been exposed to PFOA. In addition, exposures were not measured; therefore categories of exposure were very broad (ever vs. never exposed). This exposure misclassification would bias the effect estimates toward the null. Workers were also exposed to other chemicals in the workplace. The authors also note that there are differences in the distribution of age at risk among the Chemical Division and non-Chemical Division workers and that this could confound the results of the study. There were also small numbers of deaths in many of the categories for males and especially for females in all categories. The cohort needs to be followed for many years to come in order to develop an accurate picture of the mortality experience of the employees of this plant.

Research sponsors: National Institute for Occupational Safety and Health Grant and the 3M Corporation

Consistency of results: Currently there are no other mortality studies on PFOA workers.

CONCLUSIONS

Although an association between employment in the Chemical Division and prostate cancer was observed, the results must be interpreted carefully. Continued follow up of this study or other studies with direct exposure measurements might help to confirm the association.

REFERENCE

Gilliland, F.D. and Mandel, J.S. 1993. Mortality among employees of a perfluorooctanoic acid production plant. JOM. 35(9): 950-954.

OTHER

This study is the second update of the mortality study. Another update is expected to cover the years through 1997. It has not yet been submitted to EPA.