



Mortality and Cancer Incidence Among a Cohort Of Female Farm Residents in New York State

Background

The New York State Department of Health's (NYSDOH) Center for Environmental Health conducted a retrospective cohort study among a group of women living on farms in New York State from 1980 through 1993. The study's purpose was to determine if women living on NYS farms had experienced higher mortality rates for all causes or for any specific disease, or higher cancer incidence, than the general population had experienced. A previous NYSDOH mortality study conducted from 1973 through 1984 among a group of NYS male farmers had found a lower overall mortality rate when compared to a general population group. Recent research findings and public concern about a possible relationship between agricultural exposures, especially pesticide exposures, and adverse health effects prompted researchers to assess whether or not agricultural exposures to pesticides may result in higher rates of mortality and cancers among women living on farms.

Study Methods

The New York Farm Bureau membership list was used to identify potential study participants. The New York Farm Bureau is a voluntary organization that represents the economic and political interests of NYS farmers. Women who were 30 to 64 years of age and were farmers or adult relatives (sharing the same last name) of farmers who were Farm Bureau members for at least one year from 1980 through 1985 were eligible for the study. The comparison (non-farm) population group included women who were 30 to 64 years of age and resided in NYS rural or suburban areas. Women who lived in rural areas having very few farms were not included. The NYS Bureau of Vital Records provided mortality information for the study cohort (female farm residents) and the comparison (rural non-farm residents) population. The NYS Cancer Registry provided information about cancer diagnoses. By law, NYS hospitals and physicians must report cancer cases diagnosed among NYS residents to the Registry.

Results

Study findings showed that this group of women who lived on farms had experienced significantly lower cancer risks for all cancers combined and also for lung cancer, rectal cancer, and leukemia. In addition, findings showed significantly lower mortality for all causes, including malignant neoplasms, compared to the rural non-farm women residents. These findings are similar to those in the previous study of NYS male farmers, and to findings from other worldwide farm population studies. Farmers of both genders had several favorable lifestyle factors.

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The findings of significantly low overall mortality and cancer incidence probably resulted from, in part, the “healthy worker effect.” This means that women who are able to live and work on a farm are healthier than women are in general. Their physically active work and lifestyle could protect farmers and farm residents, and thereby contribute significantly to the decreased mortality from causes such as ischemic heart disease and cerebrovascular disease, and decreased risks for colon and rectal cancer. The low occurrence of lung cancer among farmers has been consistently found in other studies and has been, to a large degree, attributed to the low smoking rate among farmers.

Thyroid and liver cancers were found to be elevated, although not statistically significant, among women farm residents. Five cases of liver cancer were found among women who lived on farms, when 3.3 cases of liver cancer would have been expected. Nine cases of thyroid cancer were found among women who lived on farms, when 5.7 cases of thyroid cancer would have been expected. These higher than expected cases are considered to be statistically non-significant and possibly due to chance. High consumption of dairy products has been associated with elevated risks of thyroid cancer. Since more than half of the women in the study live on dairy farms, they may consume high amounts of dairy products.

This study did not find significantly increased mortality risk for any specific disease category. Moreover, this study did not find a relationship between breast cancer risk and women farm residents, a finding that is consistent also with other studies.

Conclusions

The study’s findings need to be interpreted carefully because of several limitations. These include a lack of specific information about the kinds and extent of exposures, and the lack of information about individual health risk factors such as smoking and other lifestyle details. In addition, the “healthy worker effect” could have contributed to the selection of a group of women who are healthier than the general population. Despite the study’s limitations and opportunities for bias in the selection of women farm residents, this study’s results, which are generally consistent with those of previous studies, suggest that this group of women farm residents has experienced relatively lower mortality and cancer incidence compared to the general rural population in NYS.

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