

US EPA ARCHIVE DOCUMENT

Investigation of Systemic Lupus Erythematosus, Nogales, Arizona

Start Date: 9/1997

Completion Date: 12/2000

Project Purpose:

To determine whether exposure to chemicals in the environment was associated with systemic lupus erythematosus (SLE) among residents of Nogales, Arizona.

Project Description:

In March 1996, the Arizona Department of Health (ADH) asked the Centers for Disease Control and Prevention (CDC) for help in conducting a case-control study to determine whether exposure to chemicals in the environment was associated with systemic lupus erythematosus (SLE) among residents of Nogales, Arizona. The study will include a clinical physical examination of case subjects and laboratory evaluation of both case subjects and control subjects. Exposure history from questionnaire data will be supplemented by data from environmental sampling and by other questionnaire data on the reproductive history, occupational history, and medication history of study participants. This study addressed multiple risk factors with emphasis on environmental exposure to assess whether or not there is an association between lupus and exposure to environmental contaminants, a concern of the Nogales community for several years.

Accomplishments:

Phase I case finding was completed in March 1998. Thirty six potential cases were identified, had diagnosis or believed they might have SLE. No evidence of seasonal variations in lupus symptoms was found in diaries collected after three months.

The Phase II case-control study commenced in May 1998. Rheumatologists conducted physical exams, and blood and urine samples were collected for clinical and biological testing for 36 potential cases from Phase I. A comprehensive questionnaire for cases and control was also administered and the biological samples collected from controls were tested for pesticides. Rheumatologists examination and clinical testing were completed on July 1999. Twenty of the participants met the case definition and were confirmed as having SLE. All clinical lab results were completed by January 1999. Laboratory analysis of biological samples were completed by March 2000.

Expected Outcome(s):

The data analysis and a written report of the results of the investigation completed in 2000 on a final study population of 19 participating cases and 36 controls. A community meeting was conducted to present findings and answer questions.

The study has two major findings:

1) prevalence of SLE in Nogales, AZ was 103 cases per 100,000 population which was two to seven times higher than prevalence estimates reported for the US population

2) results showed that both cases and controls had elevated levels of DDE, a metabolite of DDT,

and elevated levels of organophosphate metabolites

The study was unable to document an association between selected environmental exposure in Nogales, AZ and the development of SLE. The cause for increased prevalence of SLE in this population could not be determined and an association between environmental contaminants and disease was not clearly defined.

Publications or Presentations:

Balluz L, Philen R, Ortega L, Rosales C, Brock J, Barr D, Kieszak S. Investigation of systemic lupus erythematosus in Nogales, Arizona. Am J Epidemiol. 2001 Dec 1;154(11):1029-36.

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