The Newsletter of the Clemson University / MUSC Agromedicine Program

AGROMEDICINE PROGRAM UPDATE

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Program Notes

➢ Media Contacts

Comments by Dr. Simpson on the prevention of heat-related illnesses were aired during WSC Radio news segments throughout the day on May 31.

On June 3, Dr. Simpson was quoted in an article on fire ants published in the Charleston *Post and Courier*. He discussed the health effects of fire ant stings while Dr. Mac Horton, Clemson University, provided information on methods to control fire ants.

➢ Research

Plans are underway to visit hospitals in Charleston, Columbia, and the Greenville/Spartanburg area to review the medical records of patients treated for pesticide poisoning. Ms. Stephanie Eschenbach, a second year medical student at MUSC, will abstract the medical records for pertinent epidemiological data. Information retrieved from the medical records will be used to confirm statewide data for 1997-2001 received earlier this year from the Hospital Discharge Database. The Office of Research and Statistics of the State Budget and Control Board maintains the database.

Upon completion of this project, the Agromedicine Program will have a 30-year surveillance history of hospitalized pesticide poisonings in South Carolina. Such information provides a unique and valuable database.

➢ Case History: Solar Phototoxic Contact Dermatitis

by
Dr. Stanley Schuman

Two cases of severe, blistering, sunburn came as an unpleasant surprise to weekend gardeners. At their workplace, the unusual painful incidents were shared between the two affected young adults. After being seen and treated for localized sunburn on the forearms, neck, shoulders, and back, requiring analgesics and topical steroids, the workers compared their exposure histories. Neither remembered a previous episode.

One called the Agromedicine Program and gave a history of trimming fig trees with exposure to sap, and the diagnosis of plant-triggered photodermatitis was made and the future avoidance to the sap was recommended. Coincidentally, the second worker had the same fig tree exposure.

Prevention is the key to avoidance of furocoumarins in plants of the umbelliferae family (figs, cow parsnip, wild carrot, fennel, caraway, anise, coriander, angelica, parsley, parsnip, and gas plant). These phototoxic substances are lipid-soluble and penetrate the epidermis with ease. High humidity and perspiration increases the skin absorption of the phototoxin, even through a light summer shirt, triggered by UV radiation of wavelengths greater than 320 nm (usually sunlight).

Theoretically, anyone can develop the irritant form of this plant dermatitis, but only a few allergic patients experience recurrent episodes. Such allergies may crossover to prescribed medications (tetracyclines, tar shampoo, phenothiazines, sulfonamides, etc.). Currently, dermatologists see most of their acute cases due to some sunscreen protection products (containing cinnamates, PABA, benzophenones, salicylates, etc.). Old fashioned zinc oxide and titanium oxide still effectively block sunlight due to their nonchemical physical protection against UV light (A & B).

Reference: Rietschel RL and Fowler JF. Fisher's Contact Dermatitis, IV ed., Baltimore: Williams and Wilkins, 1995:524-534.

Occupation and Risk of Non-Hodgkin's Lymphoma and Chronic Lymphocytic Leukemia[1]

The incidence of non-Hodgkin's lymphoma (NHL) is on the rise in the U.S. and in other developed countries around the world. The increase in the U.S. has been observed among older people.

Risk factors for NHL are not yet clear, however research to date has suggested that occupational exposures may be responsible for some of the increase in the incidence of NHL. These epidemiologic studies have found associations between NHL and three industries (agriculture, metal production, and food) and a number of occupations: "… pesticide applicators, painters, printers, funeral directors, embalmers, plumbers, dry cleaners, engineers, mechanics, leather workers, sales and clerical workers, and construction workers." This long list of occupations suggests that the risk is non-specific.

The study led by Dr. Tongzhang Zheng of Yale University is the latest attempt to find associations between NHL and occupational exposures. These scientists analyzed data from two earlier studies of NHL patients in Kansas and Nebraska published in 1986 and 1990. A total of 555 NHL cases, 56 cases of chronic lymphocytic leukemia (CLL), and 2,380 controls were identified from the two studies. Data on occupation and exposures were obtained through telephone interview with the identified cases and controls or through the surviving family members.

Zheng and his colleagues also found a number of industries and occupations to be significantly associated among men with NHL and CLL:

Industries

- Agricultural production, crops)
- Metalworking machinery and equipment
- Motor vehicle and motor vehicle equipment
- Communication
- Telephone communication (wire or radio)
- Business services
- Miscellaneous business services

Occupations

- Teachers, except college and university
- Farm operators and managers
- Farmers
- Welders and solderers

What does this study mean to agriculture? The answer is not clear. In their discussion the authors note that an association between NHL and farming has been observed "…in several, but not all, previous studies." For example only three of 21 follow-up studies reported statistically significant associations between NHL and farmers. Also, of 19 case-control and cross-sectional studies, only eight were statistically significant.

Some scientists have suggested that exposure to pesticides is responsible for the increased risk of NHL among farmers. Other scientists are more cautious and note that farmers have numerous other occupational exposures. Chief among these are fertilizers, fuels, solvents, organic and inorganic dusts, viruses and bacteria.

[1]Zheng T et al. Occupation and risk of non-Hodgkin's lymphoma and chronic lymphocytic leukemia. J Occup Environ Med 2002;44:469-474.