Archives of Environmental Health: An International Journal

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/vzeh20

Letter to the Editor

Robert M. Park [a], Winifred L. Boal [b], Jane M. Krebs [c] & Randolph B. Schiffer [d]

[a] National Institute for Occupational Safety and Health Education and Information Division, 4676 Columbia Parkway, C-15, Cincinnati, Ohio, 45226

[b] National Institute for Occupational Safety and Health Division of Surveillance, Hazard Evaluations and Field Studies 4676 Columbia Parkway, R-21, Cincinnati, Ohio, 45226

[c] Industrial Health Sciences Inc., 1014 Bishop Road, Grosse Pointe Park, Michigan, 48230

[d] The Vernon and Elizabeth Haggerton Chair in Neurology Neuropsychiatry and Behavioral Science Texas Tech University Health Sciences Center, 3601 4th Street STOP 8103, Lubbock, Texas, 79430-8103

Available online: 05 Apr 2010

To cite this article: Robert M. Park, Winifred L. Boal, Jane M. Krebs & Randolph B. Schiffer (2002): Letter to the Editor, Archives of Environmental Health: An International Journal, 57:4, 383-383

To link to this article: http://dx.doi.org/10.1080/00039890209601426

Letter to the Editor

To the Editor.—In their study of multiple sclerosis (MS) in an Illinois community, Schiffer et al.[1] focused on exposures from a zinc smelter, in further support of a zinc hypothesis previously proposed by Stein et al.[2] and based on an MS cluster at a zinc die-casting plant in New York State. A subsequent study at the New York plant, which we performed and published in 1995 (Schiffer et al. did not cite this study), assessed other exposures in addition to zinc that could possibly be associated with neurological disorders that produced MS-like symptoms.[3] We identified a class of synthetic oils—triaryl phosphate esters—that were used widely in the plant as fire-resistant hydraulic fluids; these could plausibly have played a role. Our analysis showed an association between the onset of MS-like disease in work areas where these chemicals were used and where die-casting occurred (correlated exposures). The neurotoxicological properties of some of these organophosphates are well known. For example, the substance tri-ortho-cresyl phosphate causes a delayed dying-back axonopathy.[4] Exposures to these materials, present as crude mixtures of aryl phosphate esters, were proposed as an alternative plausible agent in the MS cluster.

We suggest that, like the zinc hypothesis, the triaryl phosphate ester hypothesis deserves testing for industrial clusters of what appears to be MS. We wonder if organic compounds present at the contaminated Illinois site were identified in the exposure assessment conducted there. It would be especially noteworthy if any MS cases occurred among employees of the smelter, and if phosphate esters were used there, inasmuch as fire-resistant hydraulic fluids and lubricants are commonly used in high-temperature applications.

References

1. Schiffer RB, McDermott MP, Copley C. A multiple sclerosis cluster associated with a small north-central Illinois community. Arch Environ Health 2001; 56:389–95.
2. Stein EC, Schiffer RB, Hall WJ, et al. Multiple sclerosis and the workplace: report of an industry-based cluster. Neurology 1987; 37:1672–77.
3. Krebs JM, Park RM, Boal WL. A neurological disease cluster at a manufacturing plant. Arch Environ Health 1995; 50:190–95.
4. Abou-Donia MB, Lapadula PM. Mechanisms of organophosphate ester-induced delayed neurotoxicity: type I and type II. Annu Rev Pharmacol Toxicol 1990; 30:405–40.

Robert M. Park
National Institute for Occupational Safety and Health
Education and Information Division
4676 Columbia Parkway, C-15
Cincinnati, Ohio 45226

Winifred L. Boal
National Institute for Occupational Safety and Health
Division of Surveillance, Hazard Evaluations and Field Studies
4676 Columbia Parkway, R-21
Cincinnati, Ohio 45226

Jane M. Krebs
Industrial Health Sciences, Inc.
1014 Bishop Road
Grosse Pointe Park, Michigan 48230

Reply to Letter to the Editor.—I feel that Dr. Park's letter was well written. I did not know that Park et al. had done a study at the same plant! I believe that their letter should be published, and I have no comments to add.

Randolph B. Schiffer
Professor and Chair
The Vernon and Elizabeth Haggerton Chair in Neurology
Neuropsychiatry and Behavioral Science
Texas Tech University Health Sciences Center
3601 4th Street STOP 8103
Lubbock, Texas 79430-8103