

May 3, 2001

Review of Acroosteolysis Literature

We were asked to review the scientific literature on acroosteolysis. The eight studies listed as references (and the abstracts or publications of which are attached) provide useful information on the disease. Pertinent information from these studies is discussed below.

Acroosteolysis is a condition associated with occupational exposure to high concentrations of vinyl chloride during its polymerization. It is characterized by the painful degeneration of the bone and tissue of the fingers and toes. According to scientists, the disease is self-limiting, *i.e.*, symptoms that include clubbing of the fingers disappear after the occupational exposure is removed. Lewis *et al*, "Vinyl Chloride and Polyvinyl Chloride," *Occ Med* 14(4)719-741 (1999), Harris & Adams, "Acro-osteolysis Occurring in Men Engaged in the Polymerization of Vinyl Chloride," *Brit Med J* 3 712-714 (1967).

Onset of symptoms can occur as early as one month after first being exposed. Lewis *et al* (1999) suggest that, because the condition was not observed until the early 1960s (20 years after polyvinyl chloride production began), it is more likely related to the combined exposure of vinyl chloride and other chemicals than to vinyl chloride alone. Symptoms subside when exposure is discontinued, and scientists report that tissue and bone appear to heal in some cases. Harris & Adams (1967), Lewis *et al* (1999).

Acroosteolysis is associated with high levels of exposure. It is unlikely to occur in workers exposed to the concentrations allowed in workplaces since the mid-1970s. Nicholson *et al*, "Occupational Hazards in the VC-PVC Industry," *Prog Clin Biol Res* 141 155-75 (1984).

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Attachments

References

Harris & Adams, "Acro-osteolysis Occurring in Men Engaged in the Polymerization of Vinyl Chloride," *Brit Med J* 3 712-714(1967)

Kind & Hornstein, "Acro-osteolysis in a Worker Exposed to Vapours of Synthetics," *Etsch Med Wochenschr* 100(18) 1001-1004(1975)

Lewis *et al* , "Vinyl Chloride and Polyvinyl Chloride," *Occ Med* 14(4)719-741 (1999)

Nicholson *et al* , "Occupational hazards in the VC-PVC Industry," *Prog Clin Biol Res* 141 155-75(1984)

Pietruck, "A New Occupational Disease (Vinyl Chloride Disease)," *Z Allg Med* 52(32) 1646-1649(1976)

Sadick "Special Communication - Polyvinyl Chloride/Vinyl Chloride Disease - An Occupational Health Hazard," *J Pak Med Assoc* 26(2) 37-39 (1976)

Szadkowski, "The So Called Vinyl Chloride Disease, Clinic and Pathology," *Fortschr Med* 94(26) 1412-1415(1975)

Viola *et al* , "Oncogenic Response of Rat Skin, Lungs, and Bones to Vinyl Chloride," *Cancer Research* 31 516-522(1971)