1-NAPHTHYLAMINE (Group 3)

A. Evidence for carcinogenicity to humans (*inadequate*)

An excess occurrence of bladder cancer was observed in workers who had been exposed to commercial 1-naphthylamine for five or more years who had not also been engaged in the production of 2-naphthylamine or benzidine. However, commercial 1-naphthylamine made at that time may have contained 4-10% 2-naphthylamine (see p. 261)[1]. Among a cohort of 906 men employed for at least one year between 1922 and 1970 in a dyestuffs plant in Italy, a considerable excess of bladder cancer deaths (27 observed, 0.19 expected) was observed among 151 workers involved in the manufacture of 1- and 2-naphthylamine and benzidine (see p. 123)[2]. A case-control study of bladder cancer in the UK showed a significant, exposure-related increased risk for dyestuffs workers. 1-Naphthylamine was plausibly concerned, but it was not possible to single out any compound from the combined exposure to arylamines[3].

In view of the contamination of the commercial product and the mixed nature of the exposures investigated, it is not possible to assess the carcinogenicity of 1-naphthylamine alone.

B. Evidence for carcinogenicity to animals (*inadequate*)

1-Naphthylamine was tested for carcinogenicity in mice, hamsters and dogs by oral administration and in newborn mice by subcutaneous injection. No carcinogenic effect was observed following oral administration to hamsters[1] or dogs[1,4,5] or in a lung adenoma bioassay in mice[6]. Inconclusive results were obtained after oral administration to adult mice and after subcutaneous injection of newborn mice[1].

C. Other relevant data

No data were available on the genetic and related effects of 1-naphthylamine in humans.

1-Naphthylamine did not induce micronuclei in bone-marrow cells of mice treated *in vivo*; it induced DNA strand breaks in mice, but not in rats. 1-Naphthylamine increased the incidence of chromosomal aberrations in cultured rodent cells, but the results for sister chromatid exchanges, mutation and DNA damage were inconclusive; no cell transformation was induced in Syrian hamster embryo cells. It did not induce sex-linked recessive lethal mutations in *Drosophila*. It induced aneuploidy but not mutation in yeast; results for mitotic recombination were conflicting. It was mutagenic to bacteria[7].

References

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