CHLORAMPHENICOL (Group 2B)

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

Aplastic anaemia has been associated with exposure to chloramphenicol[1,2], and case reports have described leukaemia in patients following chloramphenicol-induced aplastic anaemia[1,3]. A follow-up study showed three cases of leukaemia in 126 patients who had had bone-marrow depression following treatment with chloramphenicol[1].

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

Tests for the carcinogenicity of chloramphenicol in experimental animals were inadequate[1,4]. In a study reported only as an abstract, chloramphenicol administered in drinking-water increased the incidence of lymphomas in two strains of mice and of hepatocellular carcinomas in one strain[5].

C. Other relevant data

No data were available on the genetic and related effects of chloramphenicol in humans.

Contradictory results were obtained with respect to the ability of chloramphenicol to induce dominant lethal mutations in mice. It induced chromosomal aberrations in bone-marrow cells of mice, but not of rats, treated *in vivo*. Chloramphenicol induced chromosomal aberrations but not sister chromatid exchanges in cultured human lymphocytes and chromosomal aberrations in one study using cultured pig lymphocytes. It induced neither dominant lethal nor sex-linked recessive lethal mutations in *Drosophila*. It induced chromosomal aberrations but not mutation in plants. Chloramphenicol was not mutagenic and did not cause DNA damage in bacteria[6].

References

[1]*IARC Monographs, 10*, 85-98, 1976

[2]Aoki, K. (1978) Aplastic anaemia induced by chloramphenicol — clinical studies (Jpn.). *Jpn. J. clin. Med., 36*, 30-37

[3]Schmitt-Gräff, A. (1981) Chloramphenicol-induced aplastic anemia terminating with acute non-lymphocytic leukemia. *Acta haematol., 66*, 267-268

[4]Robin, E., Berman, M., Bhoopalam, N., Cohen, H. & Fried, W. (1981) Induction of lymphomas in mice by busulfan and chloramphenicol. *Cancer Res., 41*, 3478-3482

[5]Sanguineti, M., Rossi, L., Ognio, E. & Santi, L. (1983) *Tumours induced in BALB/c and C57BL/6N mice following chronic administration of chloramphenicol* (Abstract No. 50) (Ital.). In: *Proceedings of a National Meeting on Experimental and Clinical Oncology, Parma 23-25 November, 1983*, Milan, Italian Society of Cancerology, p. 45

[6]*IARC Monographs, Suppl. 6*, 142-144, 1987