

eral blood cell counts (3). Administration of MT and blood sampling was as for study 2.

After TCNU treatment total leukocyte counts fell dramatically (~70%) within 3 d in both MT treated and control rats and these depressed levels were maintained for at least another 7 d. Melatonin had no alleviating effect upon the severe leukopenia induced by TCNU treatment. Melatonin also had no influence upon the production of different leukocyte subclasses following TCNU treatment (Fig. 3). Very significant falls in PCV and RBC counts occurred 14 d after TCNU whether rats received MT or not.

Discussion

Melatonin administered in drinking water for 3 days did not cause significant release of blood leukocytes in rats as determined under the conditions described here.

Longer term administration of MT to investigate WBC production also did not significantly affect total leukocyte counts even when the effects of multiple sampling were taken into consideration. One of the difficulties encountered here was that the blood sampling regimen for multiple sampling of the same animal led to significant leukocytosis per se even though sampling was kept to a minimum. The alternative approach, to bleed animals only once, should be treated cautiously since a significant difference was found between the initial leukocyte counts of two relatively large groups of rats from the same breeding stock and assigned randomly to their groups. Nevertheless, changes in the proportions of leukocyte subclasses occurred following MT treatment, and these data suggest an association between MT and increase in neutrophils in the peripheral blood. However, Maestroni et al. (8) have shown that MT given by injection only enhances immune responses when given in the evening at around the time that rises in endogenous levels of MT begin to occur and not in the morning when blood levels of MT are low. On the other hand, long-term administration of MT in drinking water at the same concentration used here has been shown to induce profound changes to murine (10) and guinea pig (11) physiology. Thus, it is not clear whether the route of administration of MT chosen here is necessarily optimal to demonstrate effects upon either leukocyte release or production. However, the change in proportions of leukocytes warrants further investigation.

Following treatment with the cytotoxic agent, TCNU, lymphocytes, the predominant leukocyte subtype in rodents, were most severely depressed and there was no evidence that exogenous MT could reverse either this effect or effects on other leukocyte subclasses.

Thus, MT was unable to reduce the severity of myelotoxicity to TCNU as determined from evaluation of peripheral blood cell count data. However, the limitation of the evaluation of myelotoxicity based upon such data has been pointed out (12) and future experiments perhaps should focus on the role of melatonin upon the proliferation of bone marrow stem cells such as CFU-S and CFU-GM, and on administration of MT via alternative regimens.

Key words: Melatonin, chemotherapy, nitrosourea, haematologic effects, guinea pigs.

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DIFFUSE CENTROCYTIC MALIGNANT LYMPHOMA WITH UNUSUAL SITES—REPORT ON TWO CASES WITH POSSIBLE ETIOLOGICAL FACTORS

We report two patients with malignant lymphoma involving unusual sites.

Case 1. In January 1990, a 71-year-old man was admitted due to acute progressing hearing weakness. Examinations demonstrated tumoural masses obstructing both external acoustic meati. There was no ulceration. The colour of the tumours resembled that of the surrounding skin. Computer tomography did not show involvement of the surrounding bones. The eardrums were compressed but not infiltrated by tumour. Biopsy with histological

examination showed diffuse centrocytic malignant lymphoma with lambda clonality. Further clinical investigations did not demonstrate lymphoma changes elsewhere. The patient has used hearing aid in the left ear from 1983 and in the right one from 1986. He did not have previous ear diseases other than hearing weakness and according to the patient, no chemicals had been used, for instance when cleaning the hearing aids.

Case 2. In February 1990, a 34-year-old woman was admitted because of tumoural masses in both inferior eyelids. The right (15 mm in diameter) and left (10 mm in diameter) tumours involved the lateral corners of both lower eyelids at their conjunctival side. Elsewhere and around the tumoural regions the conjunctiva was normal. The tumours resembled light red protuberancies with rough surface. Histological examination demonstrated diffuse centrocytic malignant lymphoma with lambda clonality. Further investigations did not show lymphoma changes elsewhere. According to the patient, two years ago she had had her upper ciliae permed and a strong, almost continuous allergic-like reaction followed this procedure, with short transient disease-free periods.

Non-Hodgkin's lymphoma most often presents as a generalized, 'systemic' disease but may sometimes have the character of a localized tumour for instance in the upper alimentary and respiratory tracts, the gastrointestinal tract, skin, thyroid, bone, orbit, etc. The presently reported cases had an unusual localization, the external acoustic meati and the eyelids, and another striking feature was the bilateral symmetric appearance of the lesions. The

histopathology was similar in the two cases: diffuse centrocytic lymphoma with lambda clonality. None of the patients had signs of generalized lymphoma and both achieved complete remission after conventional chemotherapy.

It seems possible that in these cases the hearing aids and the solution used in the perm procedure might have been contributing etiological factors. According to official information perm solutions usually contain hydrogen peroxide, ammoniac and various chemicals with a constitution that is kept in secret for marketing reasons. It would be interesting to know if similar cases have been observed in other departments. When searching in Medline we could not find any reports of this kind.

Key words: Non-Hodgkin's lymphoma, external acoustic meatus, eyelid, etiologic factors, case report.

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