Transverse Nail Ridgings (Beau's Lines) Induced by Chemotherapy – A Dose-Dependent Phenomenon

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An article published in your journal [1] described transverse nail ridgings (Beau's lines) induced by chemotherapy in a patient with malignant lymphoma. The patient was the first out of more than 700 patients with malignant blood and lymph node diseases treated in the centre with different chemotherapy combinations.

We observed white transverse stripes (fig. 1) (Mees' stripes [2]) on the nails of 22 cases of intensively treated [3] acute myeloid leukaemia (AML). In several patients, those stripes progressed to white transverse furrows: Beau-Reil lines [2]. Every stripe represents one cycle of combined chemotherapy given at intervals of 4-6 weeks.

Mees' stripes developed in the majority of patients treated with 3 or 4 doses of dau-norubicin (DNR) 45 mg/m²/day and cyto-sine arabinoside (Ara-C) 150-200 mg/m²/ 3 h infusion every 12 h for 7 days (3/7 or 4/7 regimens). All 5 patients treated with a 3/7 h regimen, intensified with higher doses of Ara-C (300-400 mg/m² on days 5-7), exhibited a white stripe on their nails. All 22 patients with AML treated with a cycle of HDAC/DNR consisting of 10 high doses of Ara-C (2,000 mg/m²/3 h infusion every 12 h) and DNR (40 mg/m²/day on days 4 and 5) exhibited Mees' stripes, which in several patients progressed to Beau-Reil lines. Patients treated with 3/7 h or HDAC/DNR cycles experienced other signs of dermatologic toxicity [4]: maculopapular rash, acral erythema or erythroderma. Furthermore, alopecia developed in all patients and diffuse hyperpigmentation of the skin in 3.

Fig. 1. Transverse white stripes caused by chemotherapy cycles 3/7 h and HDAC/DNR in a patient with AML.

Mees' stripes and Beau-Reil lines and the dose intensity of Ara-C and DNR combination given during the treatment (table 1). The cytotoxic drugs, in a dose-dependent manner, are responsible for the toxic damage of cells in the nail matrix leading to the formation of Mees' stripes and/or Beau-Reil lines. Repeated cycles of such chemotherapy caused white banding of the nails which moved distally and disappeared as the nails grew off.

These nail changes were not observed in 44 AML patients treated with DAT chemotherapy of lower dose intensity in our department during 1982-1987: DNR 50 mg/m²/ day for 3 days, Ara-C 100 mg/m²/day in continuous infusion for 7 days and thioguanine 100 mg/m² every 12 h for 7 days [5] as well as in 3 elderly patients treated with the same doses of DNR and Ara-C between 1991 and 1993.

From our data it is clear that there is a close correlation between the appearance of

Table 1. Correlation of nail changes and doses of cytotoxic drugs in treated patients with AML

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