

## **Abstract**

### **Efficacy and tolerance of a scalp-cooling system for prevention of hair loss and the experience of breast cancer patients treated by adjuvant chemotherapy.**

The applicability and efficacy of a scalp cooling system were studied in 105 breast cancer patients receiving four cycles of adjuvant chemotherapy with mitoxantrone + cyclophosphamide (NC chemotherapy). Women accepting the scalp-cooling system were compared for alopecia both against those who refused and against a "reference" group of 109 patients similarly treated but without being offered a scalp-cooling system. Hair loss in the 105 study patients was evaluated by nurses using World Health Organization (WHO) criteria at each cycle of chemotherapy. Concomitantly, tolerance and side-effects of the helmet were also recorded in 48 accepting patients. Similarly to reference group patients, a subsample of 27 accepting patients self-assessed hair loss using a specific questionnaire measuring its frequency and severity and the distress associated with this symptom. Nurses' ratings (n = 105) indicated that hair loss frequency was constantly lower, at each cycle of chemotherapy, in study patients with scalp-cooling system (n = 77) than in those without (n = 28). Differences between the two groups were statistically significant at cycles 1 and 3 (P < 0.05). When compared with those reported by reference group patients (n = 109), study patients' self-measures of alopecia frequency (n = 27) provided even more marked results than those achieved by nurses (cycles 1-3: P < 0.01; cycle 4: P < 0.05). Tolerance was generally good and no scalp metastasis was observed among the 77 accepting patients followed up. This study demonstrates that scalp cooling was an effective method of protection against hair loss caused by NC chemotherapy. Its routine use as part of adjuvant chemotherapy, especially in cancers with low prevalences of scalp metastasis, should be seriously considered.

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