

ADVANCES IN ONCOLOGY

Current Developments in the Management of Solid Tumor Malignancies

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Reducing Chemotherapy-Induced Alopecia With Scalp Cooling



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H&O How common is chemotherapy-induced alopecia?

JL The frequency of alopecia varies with different chemotherapy regimens. According to data from Ralph M. Trüeb, MD, alopecia occurs in more than 80% of patients receiving antimicrotubule agents (eg, paclitaxel [Taxol, Bristol-Myers Squibb]), 60–100% of patients receiving topoisomerase inhibitors (eg, doxorubicin), more than 60% of patients receiving alkylators (eg, cyclophosphamide), and 10–50% of patients receiving antimetabolites (eg, 5-fluorouracil plus leucovorin). Given the chemotherapy agents used in breast cancer, many patients treated for this disease are likely to experience chemotherapy-induced alopecia. Colon cancer patients are treated with chemotherapy combinations that are less likely to be associated with alopecia. There are certain agents, such as gemcitabine (Gemzar, Lilly) and vinorelbine, that are not associated with alopecia.

H&O How often do patients express concerns about chemotherapy-induced alopecia?

JL Approximately one-third of patients mention hair loss during the first discussion about chemotherapy. During follow-up visits, patients occasionally mention alopecia, and physicians seldom ask about it. Physicians are more prone to ask about nausea and other side effects.

H&O How is scalp cooling thought to work, and how is it administered?

JL The theory supporting the use of scalp cooling is that it reduces the amount of chemotherapy that reaches the hair follicle and decreases the metabolism of the hair follicle. There are different types of scalp cooling systems. The Penguin Cold Cap (Medical Specialities of California) contains a gel; it is cooled in a freezer before use. The cap is put on approximately 20 minutes before chemotherapy, worn throughout administration of chemotherapy, and left on for approximately an hour and a half after the end of chemotherapy administration. The cap is changed every 30 minutes to ensure that the scalp remains cold. A new generation of scalp cooling systems includes ones in which fluid passes continuously through a cooling unit and is pumped into a cap (DigniCap, Dignitana; Paxman Scalp Cooling System, Paxman Coolers Ltd).

H&O How common is scalp cooling in Canada, the United States, and elsewhere?

JL In Canada, to my knowledge, the Hôpital du Saint-Sacrement is the only institution that routinely offers scalp cooling to women. (Approximately 85% of women choose to use it.) Some centers occasionally use older scalp cooling caps, but in very few patients. In the United States, the new scalp cooling systems are not approved by the Food and Drug Administration, so they are not

commonly used. In several European countries, such as the United Kingdom, France, and the Netherlands, scalp cooling is used routinely.

H&O What have previous data shown about scalp cooling?

JL Most data come from observational studies. A few older randomized controlled trials utilized chemotherapy regimens that were not typically associated with a high likelihood of alopecia or dosing schedules that were lower than what are now commonly used. These older studies showed that patients who use scalp cooling are less likely to lose their hair. More recently, a few observational studies have examined the efficacy of the newer scalp cooling systems. A 2012 registry study conducted in the Netherlands examined rates of satisfaction among 1,411 patients who had worn a Paxman scalp cooling cap during chemotherapy. The proportion of patients who did not need to wear a wig or head cover varied from 8% among patients who received a regimen of docetaxel/doxorubicin/cyclophosphamide to 95% among patients who received paclitaxel. There are no trials examining quality of life or cost-effectiveness of these types of interventions.

H&O What was the design of your recent trial on scalp cooling?

JL It was a prospective cohort pilot study to measure the degree of alopecia in women who did and did not receive scalp cooling. It was conducted at 2 centers: the Centre des Maladies du Sein Deschênes-Fabia in Quebec City, where scalp cooling is offered routinely, and the Centre Hospitalier Universitaire de Montreal, where scalp cooling is not available. Patients were eligible if they were scheduled to receive neoadjuvant or adjuvant chemotherapy. All patients had nonmetastatic breast cancer. The Penguin Cold Cap or the DigniCap were used.

The study included a total of 136 patients, 26 from the Centre Hospitalier Universitaire de Montreal who were recruited over a 9-month period, and another 110 from the Centre des Maladies du Sein Deschênes-Fabia who were recruited over a 2-year period. Women were asked to complete questionnaires and evaluate their degree of alopecia. Photographs of the women were taken at baseline, at cycle 3 of chemotherapy, and at the last cycle of chemotherapy. The degree of alopecia was assessed by each patient and by a hairdresser who did not know which patients had used scalp cooling. Assessment of hair loss was made after the last cycle of chemotherapy.

We presented results of the trial at the 2012 American Society of Clinical Oncology (ASCO) meeting. According to the assessment from the hair stylist, approximately 34% of women in the scalp cooling arm had hair loss that was considered moderate, little, or not at all (our definition of “success”), as opposed to only 9% of the women who did not receive scalp cooling. The patients found scalp cooling to be more beneficial than the hair stylist did. In the scalp cooling arm, 49% of patients rated their hair loss as moderate, little, or not at all, as compared with 4% in the non-scalp cooling arm. Quality of life questionnaires were administered to a subgroup of patients, but the analysis is not yet available.

H&O Is scalp cooling associated with adverse events?

JL Patients can experience side effects while wearing the cap, such as feeling too cold or feeling that the cap is too heavy. Approximately one-quarter of patients in our study stopped using the scalp cooling system due to these adverse events.

Concerns have been raised in the medical community about scalp metastasis. It has been suggested that if chemotherapy does not reach the scalp, then any cancer cells there will not be eliminated. The available data suggest that scalp metastases are very rare, and it is unclear whether they are associated with scalp cooling. In a retrospective cohort study of women with breast carcinoma, the incidence of scalp metastases was 1.1% (6 of 553 patients) among women who used scalp cooling in the neoadjuvant or adjuvant setting and 1.2% (1 of 87 patients) among women who did not use scalp cooling in this setting.

Suggested Readings

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