Scalp Cooling Protects Against Chemotherapy-Induced Alopecia

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CHICAGO (IMNG) - Wearing a scalp-cooling cap can reduce hair loss in women receiving chemotherapy for breast cancer, the results of a small prospective cohort study suggest.

Among women who used the cooling headgear starting 20 minutes before chemotherapy and continuing for 60-90 minutes after the infusion, 24% did not wear a wig or headband upon completion of chemotherapy, compared with 4% of a control group that did not have access to the device, investigators reported.

Further, patient satisfaction scores were higher than these numbers in a blinded assessment, according to Dr. Julie Lemieux of Laval University in Quebec City and her coinvestigators.

To grade the results with and without the cooling device, a hairdresser looked at before and after photos of women in the study, and was not told which women were in the scalp-cooling group. The criteria for successful hair preservation was characterization of hair loss as "not at all," "a little," or "moderate" from the beginning to the end of chemotherapy. The procedure was deemed a failure if the reviewer rated hair loss as "a lot," or "all," or "hair shaved."

The hairdresser graded the hair loss intervention as successful in 34% of the scalp-cooling group - as did 49% of the women who wore the caps. Only 9% of the control group received a successful grade from the hairdresser; even fewer, 4%, agreed they had not had substantial hair loss.

In all, 69% of women who tried scalp cooling said the advantages outweighed the disadvantages, and 78% said they would recommend it to other women receiving the same chemotherapy for breast cancer.

"When you look at patient evaluations, they are ... more optimistic than the hairdresser evaluations. They were more satisfied," Dr. Lemieux said in a poster-side interview at the annual meeting of the American Society of Clinical Oncology, where she displayed the results.

Scalp-cooling systems are approved for the reduction of alopecia in Canada, she said, but controversy persists among oncologists over safety and impact, if any, on the effectiveness of chemotherapy.

"If you cool the scalp there is vasoconstriction, so there is less blood that goes in the scalp ... that is the main mechanism," Dr. Lemieux explained. One concern is that scalp metastases could increase; another is that patients might receive less chemotherapy as a result.

Dr. Lemieux and her colleagues reviewed seven randomized trials of hair-cooling studies and found no safety signals. In all, 260 women were enrolled, and the studies covered a variety of chemotherapy regimens, including at least one that is not known to cause alopecia.

They also did a retrospective cohort study, and found that the incidence of scalp metastases was about 1% whether women used scalp cooling or not (Breast Cancer Res. Treat. 2009;118:547-52). Subsequently, they reported on two cases where the scalp was the first metastatic site, with metastases occurring 7 and 9 years after cooling (Breast Cancer Res. Treat. 2011;128:563-6).

At the San Antonio Breast Cancer Symposium, Dr. Lemieux and her associates reported on a retrospective study that found no difference in survival between patients who used scalp cooling and those who did not.

For the current study, the researchers compared outcomes in 110 patients at Centre des Maladies du Sein Deschênes-Fabia in Quebec City, which uses scalp cooling routinely, with those in 26 patients at the Centre Hospitalier Universitaire de Montréal, where scalp cooling is not available. The median patient age was in the early 50s, and most of the women had stage I or II, hormone receptor-positive breast cancer. A variety of neoadjuvant and adjuvant regimens were used.

The system tested in the study used a cap that is placed in a freezer and changed every 20-30 minutes, starting 20 minutes before chemotherapy and continuing for 60-90 minutes afterward. A new generation of scalp-cooling systems uses a compressor that circulates cold fluid in the cap, and it does not have to be changed.

Dr. Lemieux said the researchers conceived the study as a pilot for a larger randomized controlled trial that will address efficacy, cost, and quality of life issues. They are seeking to raise funds, as the companies that make the systems are too small to sponsor a large trial.

Cost is a concern, she noted, because of the additional time the women spend in the infusion room. "So you have to have that time available in the chemotherapy room," she said. "We also want to look at the cost of the system, of the extra time that women are in hospital, and at quality of life, too."

The trial was funded by the Fondations des Hôpitaux Enfant-Jésus et Saint-Sacrement, the Canadian Breast Cancer Research Alliance, and Sanofi-Aventis. Dr. Lemieux received a research grant from the Fonds de la Recherche en Santé du Québec.