

Scalp Cooling to Prevent Chemotherapy-Induced Hair Loss

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Summary and Conclusions

TECHNOLOGY AND TARGET GROUP Hair loss, a side effect of some types of chemotherapy, is a very negative experience for some patients. Scalp hypothermia (scalp cooling) is one approach used to prevent hair loss. The most common types of scalp hypothermia involve the use of either a pre-cooled cap or a cooling system that continuously cools a cap. Cooling must be started approximately 30 minutes prior to chemotherapy and must continue for 30 to 90 minutes after the conclusion of treatment. The target group for scalp hypothermia is estimated to be at least 2 000 patients per year, ie, patients with metastatic cancer who receive the types of chemotherapy associated with a high risk for hair loss.

PRIMARY QUESTION This assessment is based on a systematic literature review. Does scalp hypothermia prevent, or reduce the extent of, hair loss from chemotherapy?

PATIENT BENEFIT Several studies, most of which included a very small number of patients, found that scalp hypothermia helped prevent chemotherapy-induced hair loss. Several different types of chemotherapy, in various combinations, were studied. Different degrees of hypothermia were used, and different assessment criteria were applied. The percentage of patients in the study group who were able to keep their hair ranged from 10 percent to 100 percent, while the corresponding figures in the control group ranged between 0 percent and 19 percent. Apprehension about increased risk for scalp metastases has restricted the use of the method. This risk appears to be small, but the evidence is limited. Theoretically, the method could create a reservoir in the cooled scalp where circulating cancer cells might avoid the effects of

chemotherapy. The magnitude of this risk is unknown since patients in the studies have not been followed up for a sufficient period to make this determination. Although the method causes some discomfort to the patient, most patients accept this in order to avoid hair loss.

ECONOMIC ASPECTS The costs for scalp hypothermia are comprised of equipment costs, particularly devices for continuous hypothermia, and costs related to additional working hours and longer treatment sessions. No studies were identified that addressed the cost effectiveness of the method.

SBU's appraisal of the evidence

There is moderately strong scientific evidence that scalp hypothermia reduces the extent of hair loss when treating solid tumors with various non-taxane chemotherapies alone or in combination (Evidence Grade 2)*. There is limited scientific evidence showing that the method also reduces the extent of hair loss in taxane or taxane-based combination chemotherapy (Evidence Grade 3)*. There is no scientific documentation on the cost effectiveness of the method. Further studies of patient benefit, risks, and cost effectiveness are needed.

**Grading of the level of scientific evidence for conclusions. The grading scale includes four levels; Evidence grade 1 = strong scientific evidence, Evidence grade 2 = moderately strong scientific evidence, Evidence grade 3 = limited scientific evidence, Evidence grade 4 = insufficient scientific evidence.*

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The complete report is available only in Swedish.