

Chemotherapy without Hair Loss

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Abstract

Chemotherapy drugs are powerful medication that attacks rapidly growing cancer cells. Unfortunately, these cells attack rapidly growing cells in our body including those in hair roots. In 1989 Rosen use a special kind of cap which prevents hair loss due to chemotherapy. Scalping cooling idea that's been around decade but it never caught on here in part because of concern: Could cold prevent chemotherapy, from reaching on stray cancer cells lurking in the scalp. By reducing amount of blood flow to hair follicles the Dignicap effectively constricts the blood flow with controlled and sustained blast of cold air. Less blood flow means that fewer toxic chemical will reach the scalp and damage hair follicles which then cause hair to clump out.

Keywords—Hair treatment, Good feeling to the patient.

I. INTRODUCTION

Chemotherapy is an effective medication for the treatment of cancer, but its biggest disadvantage is Hair loss. Different doses may cause different effects on hairs on some cases thinning of hairs or in some cases complete baldness. It may take several weeks after treatment for your hair to recover begins growing again. When your hairs start to grow back it will probably be slightly different from the hairs you lost. It may be of different texture or colour. It might be curlier than before. Sometimes Hairs never grew and baldness occurs for lifetime. To overcome this problems we are going to introduce a Scalp Cooling Method i.e. Dignicap.

II. WHAT IS DIGNICAP?

Dignicap is the alternative to save the Hair loss in chemotherapy. It is a Hypothermia cap (Famous as a Dignicap throughout- Europe). Dignicap is first comes in mid-1990's.

It is almost prominent medical applications are in preventing or reducing alopecia in chemotherapy.

Worn tight on the head this hypothermia caps are typically made of synthetic such as neoprene, silicon or polyurethane, and filled with a coolant agent such as ice or a gel which is either frozen to a very cold temperature (-25 degree Celsius to -30 degree Celsius, or

-13 degree f to -22 degree f) before application or continuously cooled by an auxiliary control unit.

A. Working of Dignicap (Hypothermia Cap)

Dignicap consists of a touch screen equipped cooling and control unit that monitors scalp temperature and delivers cooling liquid to the inner cap. The inner cap is a silicon device that fits smoothly on the head and persist sensors and channels through which a cooling fluid is pumped.

The device contains two parts so that the front and rear of the head can be cooled separately. Finally, an outer cap keeps the system insulated and absorbs water that condenses on the cooling inner cap.

B. How it Works Actually in the Body?

By controlling the amount of blood circulation to hair follicles, the Dignicap effectively constricts the blood vessel with a controlled and sustained blast of cold air. Less blood flow means that less toxic chemicals will reach the scalp and damage hair follicles, which is what causes hair to clump out.

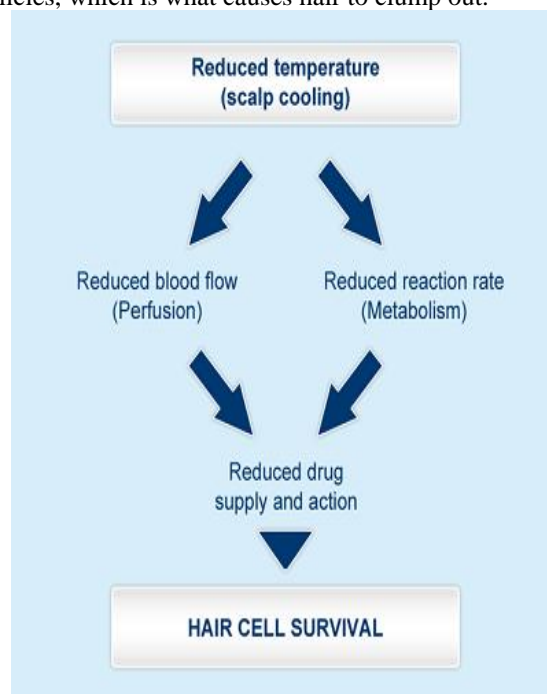


Fig.1.working of Dignicap in the body.

C. Idea comes from and Research

The first U.S patent filed in 1979 and granted in 1984, was for Mark B.Barron's "Chemo cap" which consist of resizable gel filled nylon pouches that were frozen and worn for 15 to 20 minutes prior to treatment. However studies throughout the 1980's and early 1990's were not sufficiently encouraging and the patent expired in 1998.

An analysis of 53 studies from 1995 through 2003, however, showed an average study rate of 73%, and correspondingly m, interest in the scalp cooling in the prevention of alopecia in chemotherapy patients was renewed.

One 2010 study in Finland researchers reported a reduction of alopecia , in differing amount in 100% of the 64 participants who use the caps , with 20 % opting to wear a wig following Treatment.

D. Recent Scalp Cooling Caps

Presently the Dignicap scalp cooling system and the Penguin cold cap are being used throughout the Europe, and both are undergoing testing in the United States for use in those with breast cancer while awaiting FDA approval.

The Dignicap first available in Sweden in the mid-1990's, and of the over the 4000 patients who have used it, over 85% reported keeping their hair.

In the Dignicap, coolant is cooled with the aid of compressor and then pumped out into cooling caps. Circulation is controlled by the temperature sensors in the cap and regulated by valves. If the temperature deviates from the set values or if other errors are detected, an alarm set is activated.



Fig 2.Dignicaps

The Penguin cold cap, invented by Frank Fronda of Medical Specialities of California and introduced in 1994, involves continuous application of craps filled with crylon gel cooled to -30 degree Celsius to the scalp, every 20 to 30 minutes before, during and after intravenous Chemotherapy.

E. Advantages

- Greatly reduces the hair loss and improves patient self confidence.
- Smooth optimum contact with the patients scalp.
- Flexible and comfortable throughout the treatment
- It's a new hope for the stressful cancer patients. A patient retains interest in social activities.
- Maintain constant temperature of the scalp.
- Comfortable and pain free during treatment.
- Avoids sudden chill.
- Simple to use for both medical staff and patients.
- Boosters positive attitude towards treatment.



Fig3.Comfortable use of Dignicap.

F. Cost

The Cost of using the Caps Varies depending upon the manufacturer, the number of chemotherapy sessions you will be having, and the number of months you will be using the caps . Some users have said the cost of the caps is cost of a having a wig made .But the cost is coverable as it giving the permanent solution on hair loss..

G. Other uses

1. Prevention of cerebral palsy in babies born with neonatal encephalopathy.
2. Neuroprotection after cardiac arrest.
3. Inhibiting stroke paralysis.

H. Disadvantages

Leukemia and Lymphoma are not treated as those cancer cells are commonly scattered throughout the body.

I. In India

India is emerging as popular destination for medical tourism, especially for costlier cosmetic treatments like Hair Transplant. One of the largest countries in term of population is also needful for the solutions of hair fall.

III. CONCLUSIONS

Scalp cooling or a cold cap is one of the methods with the possibility of losing your hair you probably won't find familiar in the public sector. It's method of cooling the scalp which can be used with some forms of chemotherapy to try and help reduce hair loss.

In our research, there is a quite lot of hearsay or information passed on the personal experience of

patients about this subject. As with most things, some information is correct but some of those not. You may hear comments such as ... "I had the same chemo drug as you and wasn't able to have a cold cap – so it's not worth you asking... only women can't wear them... You have to cut your hairs into bob length... the machine ones are much better ..." and so on.

There are clear facts available about how a cold cap works and who is the best suited for. It really is worth investigating so that you can consider your options clearly.

From all those we concluded that Scalp cooling is beneficial for the cancer patients and the new hope for the patients who are very much depressed because of their disease and hair loss.

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