



## **Managing Dermatologic Side Effects from Cancer Treatments: Healthy Skin in People Living with Lung Cancer, by Dr. Mario Lacouture**

### **Dr. West:**

Hello, my name is Dr. Jack West, & I'm a medical oncologist & the founder & CEO of GRACE, the Global Resource for Advancing Cancer Education. I'm very happy to be here today for a webinar program, Co-Sponsored with LUNGeVity Foundation, by Dr. Mario Lacouture, who is a dermatologist and Associate Member of the faculty at Memorial Sloan Kettering Cancer Center in New York City, the Co-Chair of the Skin Toxicity Study Group of the Multinational Association of Supportive Care in Cancer, an international organization devoted to the understanding side effects in cancer patients. He is in many ways **the** leading expert in skin, hair, and eye-related of EGFR inhibitors and other anti-cancer therapies.

So with that, I'll turn it over to Dr. Lacouture.

### **Dr. Lacouture:**

Thank you very much Jack and I would like to thank all of you for being present today and listening to the presentation on healthy skin and people living with lung cancer. And I would like to thank all of you for being today at the presentation on healthy skin and people living with lung cancer.

Before we start, it's important to know that many people do not expect dermatologic or skin related side effects during their cancer treatments, and this first slide illustrates how a survey that was conducted in cancer survivors showed that people who were receiving chemotherapy has the skin side effects that were worse than initially thought in over two-thirds of cases.

Importantly women were more affected than men and skin irritation and dry skin were the two most important side effects of all the side effects that we asked about that people experienced that they were not prepared to deal with before their treatment. Therefore, this presentation will give you the precise tools to better manage your skin, hair and nails so that they will not come as a surprise during your treatment and you can achieve the best life possible.

The second slide shows how with the drugs that are used against lung cancer by oncologists every day, dermatologic side effects are very frequent as you can see going from left to right with irinotecan, gemcitabine, pemetrexed (Alimta), vinorelbine (Navelbine), paclitaxel (Taxol), then docetaxel (Taxotere).

You have about 20 to 40% of people developing some type of skin, hair or nail side effects, but then if you look to the right of the slide, you can see that with other drugs such as erlotinib (Tarceva) or Cetuximab (Erbix): about two-thirds of people, or almost 80% will develop dermatologic side effects during the treatment.

And the question I must ask is, are we being too superficial by focusing on the skin in people living with cancer, and I think that the answer is no. That it is very important for us to focus on every part of people that are living with lung cancer so that they can maintain the best quality of life and are able to tolerate chemotherapy in the most effective way possible.

Now, this slide indicates the number of people that are affected every year with lung cancer -- approximately 200,000 people -- and some studies have shown that even before chemotherapy, about 45% of people have some type of dermatologic condition. Fortunately, these dermatologic conditions are not very serious; however, they may worsen during therapy.

The most common conditions that people can experience include skin infections, such as fungal infections of the feet manifested as athlete's foot or nail infections in the feet, dry skin, and itchy skin. In the rest of the presentation I will show you to minimize these skin conditions so that chemotherapy can be tolerated in the best way possible.

As you all know, the majority of people with lung cancer will receive some type of chemotherapy or surgery, and some people will have radiation as well. The consequences of dermatological conditions or skin, hair, and nail problems in people living with cancer are four-fold:

- 1) They have a psycho-social impact because they affect those areas of our bodies that are exposed to other people.
- 2) They carry a financial burden. We know that paying for many of these medications carries a significant out of pocket cost.
- 3) They have an effect on physical health. They can be associated with itching, pain that can affect people's ability to do their daily activities or sleep therefore affecting a person's overall health.
- 4) And what can be considered one of the most important factors of dermatologic conditions in people living with lung cancer is that they can lead to the interruption, decrease or discontinuation of chemotherapy because the skin side effects are either intolerable to the patient or it can be dangerous.

Therefore, it is important to, if possible, prevent side effects so that they don't affect people's quality of life or life in general and to manage them if they do occur.

So, why is the skin so important? This slide illustrates the major roles of the skin. It is the largest organ in our bodies, which acts like a barrier that protects us from noxious environmental bacteria, viruses and fungi. It also regulates our temperature in our bodies and enables us to receive sensory impulses: the way we perceive things in the environment; heat or cold, and when we touch things. And then the skin is very important because it also is in charge of forming a type of vitamin called Vitamin D, which is very important for our overall health.

The skin is composed of three major layers that are illustrated in this slide. The outer-most layer is called the epidermis. This is a very thin layer that undergoes constant renewal and is changed every 28 days. In other words, every month you will have a completely new layer of skin. The importance of this is that during chemotherapy treatment, most drugs block the activity or the ability of cells in our bodies to divide or grow, and therefore most chemotherapy will not be able to discriminate or differentiate between a cancer cell that they are destroying or a normal cell such as skin cells that are growing, thereby leading to the dermatologic side effects that we will see in the rest of the presentation.

Underneath this layer, the epidermis, is another layer that is slightly thicker and is known as the dermis. This layer is the layer that is responsible for holding the sebaceous or oil glands in our skin, our sweat glands as well as holding the hair follicles or the structures in charge of making

the hair in our bodies. This part is very important, because once damaged, it can lead to scarring that can be permanent. Therefore, inflammation in the hairs or in the skin should be maintained to as minimum to prevent long term scarring or changes in color.

Underneath this layer is the layer known as the hypodermis, which is composed of primarily fat cells.

So moving on to the most important side effects that can occur during lung cancer treatment, one has to start with hair loss. Hair loss can occur in between 65 to 100% of people being treated with chemotherapy most notably Taxol (paclitaxel), or docetaxel (Taxotere) can cause hair loss in patients.

Gemcitabine can also cause some degree of hair loss, and as we will see later on, the targeted drugs such as Tarceva or Erbitux can also cause some degree of hair thinning. This hair loss is most frequent between the second and fourth week of therapy and, importantly, hair loss with conventional chemotherapy appears to be reversible, but the hair when it re-grows can re-grow either with a different color or with a different texture, such that a person that has dark, straight hair can grow back gray curly hair after they're done with chemotherapy.

Many people are bothered by hair loss during chemotherapy, but there may be some ways to mitigate this side effect, and in this slide you can see the results of a study that was conducted about 15 years ago in women with breast cancer. In this study, 20 people were split into two groups. The group on the left received minoxidil, which is a lotion that has been shown to stimulate hair growth, and they applied it twice a day during the duration of their chemotherapy.

On the right you see the group of people that received a placebo cream, or a cream not containing the active ingredient of minoxidil. Then at two months, people were looked at and were followed, and a two-inch area of the scalp was examined to determine the amount of hair loss, and the results of this study are shown here. What these investigators found was that by using minoxidil, also known as Rogaine, twice daily during chemotherapy, the total duration of complete hair loss, in other words the time with which people were completely bald, was reduced by about two months if people were able to use minoxidil every day.

So, in summary, if you want to reduce the duration of the complete hair loss, using minoxidil twice a day on the scalp may be an effective way to do this. Minoxidil as you can see here, is available in a solution. In some cases it's marketed as being for men, in other cases for women, but the important thing is that now it is available in a generic form. I prefer to use the 5% formulation, which is stronger. A small proportion of people may grow hair in other areas of the body that are undesirable. For example, they may grow slightly increased hair on the face, but that can be treated in certain ways that we'll be going over later. And also it is important to keep in mind that the reason that minoxidil 5% is marketed or labeled as being for men only is not for any real reason other than that was the rationale behind the marketing of the product, but women can also use minoxidil 5%.

Interestingly, as you can see here, minoxidil or Rogaine is also available as a foam, so for people that have some degree of hair still on the scalp the foam is easier to apply to the scalp, because it goes through the hair follicles. Remember that this is to be applied on the scalp, not on the hair itself, so the foam can be easier to apply because it dissolves immediately upon contact with the scalp.

Other vitamins that have shown to stimulate the strength of the hair and the rapidity of the growth of the nails are listed here. Please keep in mind, however, that every vitamin should be consulted first with your oncologist, and many people want to be on the safe side and avoid taking any vitamins during their active chemo treatment and start taking them after they have completed their treatment.

The two vitamins that have shown a beneficial effect in the hair and nails are biotin and the dosing is 2.5 milligrams a day, and another supplement called orthosilicic acid that goes by the trade name of biosil. The dosing that is recommended for this is 10 milligrams twice daily. These are to be taken on a daily basis, and importantly if you *do* have persistent hair loss after chemotherapy, which some people report, it is important to see a doctor that can look for other causes of this persistent hair loss after chemotherapy, since most people will re-grow within two to three months after completing chemotherapy. Through a simple blood test your doctor can investigate whether you have any thyroid or iron storing abnormalities in your blood which may also account for the hair loss. So, if you are concerned about persistent hair loss, please make sure you see your doctor so that other causes can be ruled out.

This slide shows other side effects that can occur in the hair that are specific to people that are being treated with the targeted therapies, as they are known, because they block these specific proteins or molecules in cancer. These drugs, the most widely used ones are Erlotinib or Tarceva and Cetuximab or Erbitux in lung cancer. These drugs after more than three to six months of treatment can lead to the following hair changes: they can lead to increased hair growth in areas of the face that are normally reserved for men. This is a condition known as hirsutism, as seen on the left side. This is the chin of a woman; you can see the abundant hair.

Now paradoxically on the scalp people grow thinner, more curly hair, as you can see here in this central figure. This can bother some patients, because they thought that these drugs can cause so many hair problems, but it turns out that will long term therapy these drugs can thin the hair on the scalp.

The good news is that, in my experience, this tends to be a temporary type of hair loss, so there is no need to worry about this being progressive and that people on Tarceva and long term therapy are going to loose all their hair, because this is again a thinning of the hair and it appears to be temporary.

So, I would advise for people on Tarceva and long term therapy that are experiencing some hair thinning to have blood work to determine whether their thyroid and their iron stores are normal and also to use minoxidil or Rogaine to minimize the degree of hair loss.

In addition, I also have seen that many of these patients, and something that has been reported, is seen on the right side, which is the growth of these long curly eyelashes. In many cases, there are many people who like to have long curly eyelashes, but it is important to keep in mind that these eyelashes can sometimes grow and grow towards the eye, causing dry eyes and itching and irritation. Therefore, if you are experiencing any degree of long eyelashes or eye symptoms such as itching or discomfort in the eyes, to see an ophthalmologist because up to a third of people on Tarceva or Erbitux can develop some type of eye problems. The good news is that they are usually not serious eye problems, but nonetheless require treatment.

But what is considered to be the most important side effect with the targeted therapies to Tarceva and Erbitux is the acne like rash that usually occurs in the face, chest and scalp. This rash as seen in this figure is characterized by these red bumps on the face, chin and chest, as

well as the scalp, in about 80 to 90% of people. It occurs within the first month in 90% of people and is severe in approximately 40% of those people.

The rash appears to be somewhat more severe with certain types of drugs, such as Erbitux and Vectibix, but I would say that in general most people do have a similarly appearing rash. It appears that younger people that have lighter skin develop a more severe rash. The treatment for this rash will be discussed later in the presentation but usually consists of topical corticosteroid creams and oral antibiotic tablets.

It is important to treat this rash, because as we can see in this slide, if your skin is broken down by a rash or severely dry skin or itchy skin, it can allow for the penetration of bacteria that can lead to infections. And we have conducted an analysis of 221 people treated with targeted therapy such as Tarceva and Erbitux and found that up to 38% of people with rash or other skin problems can have secondary infections of the skin or nails. Most often the infections were bacterial, which is in a way good news because these can be treated easily with the antibiotics, but it is important for your doctor to do a culture of your skin every time that a skin infection is suspected, so that the appropriate antibiotic therapy can be given. Most of these skin infections are not contagious, in the sense that you can't spend time with your family members or be close to your loved ones, but they do require treatment with antibiotics, and once treatment with antibiotics is initiated, resolution is usually very rapid, within one to two weeks.

So, how do we treat the rash associated with drugs such as Tarceva or Erbitux? Well, a study was conducted and patients were divided into two groups. One group received a prophylactic; in other words treatment that was started from day one even before they started developing the rash with this type of drug. The treatment consisted of a moisturizer, a sunscreen (because we know that this as well other rashes can get worse with sun exposure), a topical corticosteroid cream, and the antibiotic doxycycline which is a very safe antibiotic that is used extensively in teenagers with acne, for the first six to eight weeks of therapy with a drug known as Vectibix, which is similar to Tarceva or Erbitux.

And what was found in this study is listed here. That about 30% of people treated preventively developed significant skin problems, compared to 62% of people who were not treated preventively, suggesting that if most people are going to start treatment with drugs such as Tarceva or Erbitux, it would be key to start treatment with the oral antibiotic capsules and the topical corticosteroid medicines even before the rash appears. Since we know that about 80 to 90% of people develop rash, why not prevent it instead of waiting for it to appear in order to start treatment. And what was very surprising about this study, as shown here, is that other side effects such as fatigue, diarrhea, low white blood cell or low immune cell counts in the blood as well as water loss in the body were reduced by maintaining the skin in the healthiest way possible through that preventive treatment. In other words, by treating your skin in the best way possible with the preventive antibiotics and topical corticosteroid creams, people avoided not only skin problems but also problems of other parts of the body such as diarrhea and dehydration.

Now, moving on to a different type of drug, a drug known as gemcitabine, or Gemzar. With this drug, what can happen is that approximately one out of five people can develop the swelling of the lower legs which can be in some cases painful. Interestingly, this does look like it was an infection of the skin, but it does not respond to oral antibiotics or topical antibiotics creams. Therefore, the treatment consists of oral corticosteroid therapy such as dexamethasone (Decadron), the use of the compression stockings and the use of antihistamines such as Benadryl. Leg elevation is also key, so if you are receiving Gemzar (gemcitabine), it is important to tell your doctor if you develop any degree of rash.

With Gemzar (gemcitabine), people can also develop rash in other parts of the body. It is usually characterized by a red rash that can be itchy and can occur in areas such as the sides of the chest and the sides of the legs. If you experience any of these symptoms, please inform your doctor so that appropriate therapy can be instituted, which usually consists of a topical corticosteroid cream such as Lidex cream.

A different drug that is frequently used in lung cancer is pemetrexed (Alimta). This is one of the newest drugs approved for lung cancer, and dermatologic side effects are fortunately infrequent. Only one out of five people develop a rash on the upper body that is characterized by these tiny little yellow or white bumps on the skin. The treatment usually consists of topical corticosteroid creams, such as the ones that I have just mentioned. Hydrocortisone that can be purchased over the counter would be a good initial therapy, and also it is important if there is any opening in the skin to use topical antibiotics such as bacitracin zinc that can be obtained over the counter in a pharmacy.

This next slide illustrates one of the rare side effects of the skin that can occur in people treated for lung cancer, which is called radiation recall. This occurs in people that have received radiation in the past, and what happens here is that when people have received radiation for their lung cancer, their skin is not very affected because the radiation is usually delivered to a deep area in the body. But then when they receive chemotherapy, the skin somehow remembers the radiation damage that it incurred and becomes more inflamed, red, in some cases itchy and painful. The good news is that using topical corticosteroids again will usually alleviate these symptoms, and the radiation (*sic*) does not need to be stopped or interrupted.

Now, another significant problem that people report during treatment with chemotherapy is that their eyelashes can become very thin, and they can lose most of their eyelashes. So, for people who are bothered by this, the solution is to use an eyelash stimulant. We currently have one of these drugs approved in the market; it's known as Latisse, as seen in this slide, and by using this daily on the upper eyelid, people are able to grow thicker, fuller and longer eyelashes after about two months of treatment.

People with light eyes need to be careful because sometimes, and very rarely, people can develop dark spots in the eyes, and other people can develop some degree of irritation. I recommend for people not to use Latisse during active chemotherapy treatment, but rather when people have completed treatment and they are more than three months after therapy, and they feel like their eyelashes are not growing normally. Then if someone would like to apply Latisse I would prescribe him.

Now, moving on to another important part of skin side effects and cancer treatments: nail changes. Nail changes are very common, especially with the taxane drugs, Taxol or Taxotere. What can happen with these drugs, and also with other drugs, is that the nails can become discolored, as seen in the upper photograph, where you can see how the nails become darker. The nails can also separate, and this separation can allow for secondary infections. These infections can be painful and can discharge sometimes this foul smelling fluid.

This is also very common with the targeted drugs Tarceva or Erbitux. About half of people treated with these drugs will develop a painful redness around the nail. This painful redness usually occurs after about three to six months of treatment. It is usually not because of ingrown nails, but it is rather the drugs that are causing some degree of inflammation in the areas possibly due to the fragility of the skin. Treatment for this usually consists of applying an antiseptic

solution or an antiseptic gel such as betadine gel or iodine gel, which is usually obtained over the counter in a pharmacy. Because of the iodine's color, I recommend for people to apply a small amount of iodine and then cover the area with a band-aid.

Another good treatment whenever there is a suspicion of nail infections is for people to soak their fingers or toes in a solution of white vinegar in tap water at one to one equal distribution every evening. If the problem persists, you may want to see a dermatologist. The dermatologist may need to do a procedure called silver nitrate chemical cauterization, which includes the application of a chemical to the sides of the nail that destroys bacteria and inflammation. It is usually a painless procedure but sometimes can cause some discomfort, but people are very happy because the pain subsides very quickly.

Products that can be used to stimulate the growth of the nails include the biotin vitamin that we have discussed previously, taking 2.5 milligrams every day.

It is also important for people to apply nail-polish that will be maintained for at least two weeks; therefore, we sometimes recommend the application of gels to the nails if they want to color their nails, so that they don't have to undergo repeated removal of the nail polish with harsh nail polish removers. We also recommend for people to use dark nail polishes so they will hide the discoloration or infections that can be occurring under the nail, giving people more comfortable ability to use their hands if they are working or doing activities with other people.

And one of the most important advances that has occurred in the past ten years in the treatment of these nail changes is that with people that are receiving treatment with a taxane, such as Taxol or Taxotere, is that for people that are having significant problems in the nails, we recommend for them to use cold gloves that are to be applied during the infusion. The way this works is that when people are receiving chemotherapy with either of these drugs, the Taxol or the Taxotere, they will put their hands and feet in these cold gloves and slippers. And these cold gloves and slippers, what they will do is they will shrink the blood vessels in the fingertips and toe tips, making less of the chemotherapy delivered to those areas, and therefore less side effects in those areas. Importantly if they are not available these gloves and slippers at your chemotherapy office, you can use ice packs. So, if your nurse can give you some ice packs that you can hold during the infusion this can also minimize the degree of chemotherapy-induced nail damage that can occur with these drugs.

However, remember that if there is any nail separation with foul smelling fluid, it is important always to consult your doctor so that a culture can be obtained and the appropriate antibiotic treatment can be instituted.

In the next slide I'm listing the two types of sunscreen that are to be used if one is receiving chemotherapy. I many times have patients ask me if they can go out in the sun when they are receiving chemotherapy, and my answer is always yes. The goal and why oncologists work so hard everyday in finding better ways of treating people is to make people's lives longer and better. So, we want people to enjoy life, do things with their family, so therefore there is a practical way of doing this: using sun protection when doing outside activities. This slide illustrates the two types of sunscreen that are available. On the left side you have a chemical type of sunscreen, which are the most well known ones. These will protect against most types of radiation coming from the sun, but they have to be selected very carefully, and I will be listing these in the next few slides.

On the right you have the physical sunscreens. These are physical blockers. What this means is that these are particles; millions of tiny particles of these minerals titanium dioxide and zinc

oxide that act like millions of tiny little mirrors when placed on the skin. The easiest way to identify these physical sunscreens is by looking in the back of the bottle and seeing that it says either titanium dioxide or zinc oxide. The drawback to this type of sunscreen -- although it's probably one of the best in protecting the skin -- is that it gives -- it has a whitish or gritty appearance in some cases, but I think that technology has improved to such a degree that they can be used in almost every area without causing significant problems.

Now, this is the type of sunscreen that is a chemical type of sunscreen that people like to use on their face and filials (?), because it is very thin it dissolves very easily and it does not have that whitish appearance that can be uncomfortable for some people. The other type is Neutrogena with helioplex or also a Aveeno with active barrier complex. These are chemical sunscreens that have a good appearance when applied but yet protect against all types of ultraviolet radiation, which is important to protect against all types of ultraviolet radiation because if not, as you can see here in this slide, if a person is exposed to the ultraviolet radiation A which is not covered by many sunscreens, one: it can lead to skin inflammation damage and aging.

For dry skin that is very common with these drugs, these two photographs illustrate severely dry skin on the left and these painful cracks and fissures on the right. The important thing is that this dry skin can be affected by the majority of drugs used against lung cancer, and to make things even more important in this regard, most people even before chemotherapy will have dry skin. Dry skin is worse in the winter and in the fall. Most drugs can cause dry skin, but the most notable one are Tarceva and Erbitux. The problem with dry skin is that once skin becomes dry, it can become itchy, leading to people scratching, causing secondary infections. For dry skin, keep in mind to use creams or ointments rather than lotions. Avoid hot showers and fragrance-filled soaps, so use a mild soap, and fragrance-free detergents should also be used. So, any detergent that says 'free' or 'clear' and doesn't have a lot of smell is the best one for you.

So, what is the difference between a lotion, a cream and an ointment? A lotion is easier to apply but has less protection in terms of being able to retain water, whereas an ointment or a cream are the best bet, because these will retain most of the moisture in your skin. Two types of commonly used moisturizers include CeraVe and Cetaphil. These are good to use all over the body. It's important to use the cream type formulation. Aveeno also has a good skin relief moisturizing cream. Many of these are obtained at any pharmacy and are relatively inexpensive.

For those of you that develop sensitivity in your skin, which I've noticed that many people on Tarceva and Erbitux, they develop allergies to things that they were never allergic to, especially around the neck or the face. Make sure you use a cream that has no fragrances or perfumes, and the cream that has no fragrances or perfumes that is well known to dermatologists are these products known as Vanicream, which are made specifically for people with very sensitive skin. You can see here how you can find them at a web site, or also on the internet at Amazon.com, but many pharmacies will carry Vanicream and also carry Vanicream-containing soaps, shampoos, as well as sunscreen. So, for those of you with sensitive skin, Vanicream would be a good option.

For people who have very flaky dry skin in areas of the body, the best thing to do is to use an exfoliant. By exfoliants, I don't mean to use loofahs or sponges in the shower, which by the way are many times loaded with bacteria, and as a dermatologist we always recommend against the use of loofahs, sponges, or scrubs because these can irritate the skin, causing inflammation and even more rashes.



What we do recommend is a gentle exfoliation with the use of products such as ammonium lactate cream, as seen here. Ammonium lactate cream can be obtained over the counter, and keep in mind that it should not be used on the face or on very irritated or red skin. If you are unsure of how you will react to a certain type of cream, what we recommend is a “use test”. A use test is essentially applying a small amount, a quarter sized amount of cream, on the forearm or behind the ear and leaving it for about a day. If you have no irritation or redness, then that means that your skin will probably not react in a negative way to this cream, and you can apply it all over the body.

For these painful cracks on the heels or in the fingertips, the best way to prevent or treat these is by using a very thick moisturizer, such as Desitin or Desitin Maximum Strength. Some people also like A&D ointment, which is also effective. This contains zinc oxide and provides a barrier in preventing the appearance of these painful cracks in the fingertips and heels. These need to be applied up to four times a day and at night ideally one would cover with socks or cotton gloves so that the water in the skin is retained and the fissures are allowed to heal. Other people like to use liquid band-aids to seal those cracks if they are impairing their ability to do their jobs or other hobbies.

In summary, dermatologic side effects are very important to be managed during treatment so that they don't affect a person's quality of life and people can continue with their therapies. There are clinical trials that are underway that we are conducting to try to better understand and treat dermatologic side effects in people living with lung cancer.

The major recommendation is to treat everything, if possible, preventively or early on because as with any condition, the more severe it is, the most difficult it will be to treat. So maintaining the skin moisturized, preventing severe sun exposure. In cases where you are receiving a drug that is known to be associated with a rash in the majority of people such as Tarceva or Erbitux, I would treat everyone prophylactically to prevent the rash.

Maintaining your nails cut short and not scratching your skin are all part of maintaining your skin, hair, and nails in the optimal therapy, so that you and your oncologist can get the best treatment possible and you can enjoy your life with your families. I also believe that these side effects will become even more important when some of these drugs are administered even earlier on during the diagnosis of lung cancer, and in many cases the doses are being increased to achieve a better response. And of course it is very important to keep in mind that quality of life is a very important component that we always strive for in people living with lung cancer.

There is also a resource, if you are interested in additional details, in which all of these recommendations are listed. It is a book called, at the moment, **Healthy Skin for People Living with Cancer**, and this can be obtained through your doctor. Many topics are included such as how to maintain your skin during treatment with drugs that cause rash, moisturize your skin and the secrets to maintaining the best skin health possible during treatment.

Your doctor can request a copy of this book for you at [harborsidepress.com/healthyskin](http://harborsidepress.com/healthyskin).

Thank you very much for your time today, and it has really been an honor to present today; and hopefully this information will help you during your treatment.

Thank you very much.

**Dr. West:**

Thanks so much for that comprehensive and very practical review of this important topic. We'll conclude this podcast and turn next to the question and answer session that followed Dr. Lacouture's discussion.

Thanks again to LUNGeivity Foundation for their support in developing this program activity.