

Patient Perspectives on Adjuvant Systemic Therapy of Non-Small Cell Lung Cancer

A Continuing Medical Education Audio Program

OVERVIEW OF ACTIVITY

Lung cancer is the leading cause of cancer mortality in the United States, claiming more lives than breast, prostate and colon cancer combined. The results of international clinical trials have established the contribution of adjuvant systemic therapy to the clinical management of non-small cell lung cancer (NSCLC). Despite the opportunity for risk reduction and definitive cure with adjuvant treatment, decision-making regarding its use in lung cancer, in addition to other common tumor types, presents a substantial challenge to patients with newly diagnosed disease who find it difficult to understand the purpose of additional treatment after surgical removal of all apparent disease. Evidence from the literature suggests that a significant fraction of patients with lung cancer believe they have received insufficient information about therapeutic benefits and risks to effectively participate in clinical decision-making. To this end, oncologists are charged with maintaining up-to-date knowledge of best-practice treatment options and ensuring that important efficacy and safety findings are appropriately communicated to patients. This CME program is designed to assist oncology clinicians with the evidence-based formulation of lung cancer treatment algorithms and provide access to patient perspectives that may facilitate the delivery of high-quality empathetic care.

LEARNING OBJECTIVES

- Utilize key clinical and pathologic prognostic factors when recommending local and systemic treatment options to patients with NSCLC.
- Effectively communicate the individualized risk of cancer recurrence to patients with surgically resected NSCLC.
- Develop an evidence-based algorithm for the initial treatment of localized NSCLC, exploring the role of neoadjuvant and adjuvant systemic therapy.
- Appreciate diverse patient perspectives concerning lung cancer diagnosis and treatment, and use this insight to deliver high-quality empathetic care.
- Recognize signs and symptoms of chemotherapy-induced side effects, and offer supportive management strategies to address them.
- Educate patients eligible for adjuvant chemotherapy about the benefits and risks of commonly used chemotherapeutic regimens, and explain how systemic lung cancer treatment may affect quality of life.

- Recall the scientific rationale for investigation of novel agents and strategies in NSCLC, and counsel appropriately selected patients about availability and participation in ongoing clinical trials.

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Interview of Heather Wakelee, MD

INTRODUCTION TO ADJUVANT CHEMOTHERAPY AND RISK ASSESSMENT OF CANCER RECURRENCE

DR LOVE: (Program Narration) Welcome to this patient information program on adjuvant systemic therapy of lung cancer. This is medical oncologist Dr Neil Love. Our education group in Miami has been producing interview programs on cancer treatment for more than 20 years. On this program, we visit with two medical oncologists and a nurse practitioner specializing in lung cancer research and treatment, and four patients who have received systemic treatment in addition to surgery for their early-stage disease. We have asked these people the questions we think patients and families may pose. We hope you will take what is useful and leave the rest behind.

To begin, oncologist Dr Heather Wakelee comments on the background for the development of this important and commonly utilized therapy.

DR WAKELEE: We've known for many years that giving additional treatment after surgery for breast cancer and colon cancer can significantly improve cure rates and for lung cancer, we didn't really have that data until about the last five years or so.

The risk with lung cancer and most other cancers is that there could be small tumor cells that have escaped. Most of them, before the surgery happened. Theoretically there could have been a few even at the time of surgery and what we would hope to do is to go after those escaped tumor cells.

DR LOVE: Well, what about just waiting until they become a problem?

DR WAKELEE: Once they do come back, they're more likely to show up in other parts of the body. And once cancer has shown up in other parts of the body though we can still treat, give people time, we don't know how to cure at least with the treatments we have today. And so what we'd like to is prevent the cancer from coming back at all.

DR LOVE: So can you actually figure out who it is that's going to have the cancer come back?

DR WAKELEE: We have some things that can give us a hint. We know that if the cancer has spread to lymph nodes it's more likely to come back. But other than that, we don't have a lot of data. People have been doing a lot of research, trying to identify particular proteins that the tumor might express to indicate it's more or less likely to come back, but that's all still very experimental. And so at this point, the best that we have are looking at how many lymph nodes were involved, if the tumor looked particularly aggressive under the microscope, that can give us hint. If it looked like it was invading into blood vessels, that might give us a hint.

DR LOVE: So you look at all these things and you come up with kind of what, a percentage of the chance that you think it might come back?

DR WAKELEE: Pretty much.

DR LOVE: So if you have a situation where, let's say there's a 40 percent chance that it might come back, it also means there's a 60 percent chance the person's cured.

DR WAKELEE: Exactly. And when I'm talking to a patient, we highlight that and talk about the fact that there's a more than likely chance that they've already been cured, that there's a percentage of people even if we give them treatment, who will not be cured, and so we're, at this point, probably impacting five to ten percent of people. And I usually go through the analogy if there are one hundred people who get treated with adjuvant chemotherapy, chemotherapy after surgery and one hundred people that don't, in the group that got the chemotherapy there'll be five to ten more of them alive at five years versus in the group that did not get the treatment.

And some people look at that and decide, that's enough. I'm willing to go through three months of treatment or a year on a trial to be one of those five to ten people. And other people say, "well if it's not a 20 percent difference, I'm not going to do it." And so I try to bring it into that, that discussion of percentage cure at five years. I think that's a concept that people are able to understand.

I think most people have done at least a little bit of gambling and can understand odds when we're talking about percentage rates.

DR LOVE: So, what's the range of the risk without any treatment that is involved with these patients? What's the low and high end?

DR WAKELEE: Well, for patients who have the mediastinal nodes involved, the Stage III patients, the chance of the cancer coming back with surgery alone is going to be 70 percent, maybe even higher.

DR LOVE: And when you say mediastinum, that's in the middle of the chest.

DR WAKELEE: Exactly. So the lymph nodes have spread to the center, the mediastinum, that central part. For patients who have lymph nodes that are in the lung themselves, we call those the N1 nodes. Those would be patients we would call Stage II. Their chance of having the cancer come back is somewhere between 40 and 50 percent. And if there are no lymph nodes at all, the chance of the cancer coming back is still as high as 30, maybe even 40 percent. And so this is a very dangerous disease for that reason because it does tend to come back, even when the surgeon's gotten everything.

DR LOVE: So you're looking at people who have a risk, maybe in the range of 30 to 70 percent depending upon a lot of factors they need to ask their doctor about to really find out about them. And then decreasing it, but not bringing it down to zero.

DR WAKELEE: Correct.

DR LOVE: The word "adjuvant" is often used for this. Why do they use that word?

DR WAKELEE: It's a term we use for treatment after the surgery. So I think postoperative chemotherapy is probably a better term and it's more understandable.

DIFFERENCE BETWEEN NON-SMALL CELL AND SMALL CELL CANCER

DR LOVE: But I guess adjuvant implies adding something on and I guess it's the surgery that traditionally this is being added on to. Now we're focusing in our conversation here today about so-called non-small cell lung cancer, but there also is a small cell cancer. Can you talk about the frequency of the two and what the difference is?

DR WAKELEE: Sure. So small cell lung cancer looks different under the microscope and the cells are small, which is how it got the name small cell and everything else was lumped together as non-small cell. The small cell cancers tend to be more aggressive. We don't usually find them when they are just sitting out in the lung and haven't started spreading. Usually we find them once they're already gone into lymph nodes, particularly the lymph nodes centrally and sometimes have spread more widely.

Small cell used to be about 20 percent of all lung cancer. It's dropped down to maybe ten to 15 percent. It's more strongly associated with smoking than non-small cell and we think some of that change is related to changes in smoking patterns that we've seen, particularly in the United States (**SEER**). We treat small cell lung cancer always with chemotherapy. The chance of it responding to chemotherapy is much higher than the chance of non-small cell responding to chemotherapy. And when it's confined to just the chest, we can give radiation and chemotherapy together and cure a percentage of patients that way.

Surgery is very, very rarely used for small cell, just because it's very rarely found when it's a single nodule in the lung, a mass in the lung that hasn't spread extensively.

TYPES OF NON-SMALL CELL LUNG CANCER (NSCLC)

DR LOVE: Now within the so-called non-small cell, which is the majority – what about 80 percent or more I guess of all lung cancer, what types within that exist and what are the differences?

DR WAKELEE: So there are three major types, they're the adenocarcinomas are the most common; the squamous cell carcinomas are the second most common, then we have large cell and then there's a bunch of others and we kind of just call those non-small cell, not otherwise specified.

The adenocarcinoma is increasing in its percentage of all lung cancer. We don't really know why. There are theories that it has to do with changes in how cigarettes were made, but that's also the type of cancer that we see in the non-smokers. And again, non-smokers represent probably 20 percent of women who get lung cancer and maybe ten percent of men and so that's a significant number of patients with this disease. So we don't understand all the factors that lead to the development of lung cancer in those patients, but that's one of the differences.

Fast-Facts Lung Cancer Overview

Squamous cell tends to occur in patients with a smoking history. It tends to be more centrally located. If it is removed before it has spread to lymph nodes, the cure rates are a little bit higher. The adenocarcinomas do tend to start spreading when they're a little bit smaller, but it's not a perfect correlation there.

And then the large cells are much less common. They tend to be a little bit more aggressive. There are also differences in how they respond to certain treatments and most of that data comes from the patients where the cancer's already spread where it's metastatic or advanced stage. And in those groups, some of the newer chemotherapy drugs, in particular pemetrexed seems to work best in the

adenocarcinomas and the large cells. Some of the newer targeted drugs, such as the epidermal growth factor receptor drugs like erlotinib, also called Tarceva, and gefitinib, also called Iressa, those might work a little bit better in the adenocarcinoma type though they do also work in the squamous. And in the metastatic disease, some of our other “targeted drugs” might be a little bit more toxic, such as the ones targeting blood vessel formation. We don’t think that’s the same though if the cancer’s already been removed, if there’s no large tumor.

RECOVERING FROM SURGERY AND DECIDING ON ADJUVANT TREATMENT

DR LOVE: And we’ll get into that, but essentially what we’re talking about though is somebody who comes to see you as a medical oncologist, what maybe a month or so after having had a chest surgery?

DR WAKELEE: Usually and a lot of them, I will have seen before their surgery as part of our multidisciplinary tumor board.

DR LOVE: Right. So you might even see them earlier. So, but what they’re looking at as they recover from this surgery is the consideration of receiving chemotherapy for, and we’ll talk about the types, but for a short period of time, about how long in general?

DR WAKELEE: Generally, it’s about three months of treatment. Most of the regimens are once every three weeks. Some of them have an additional treatment on the day eight or at week two, but it’s almost all done as an outpatient, so it’s pretty much one full day and maybe a few extra days getting some fluids and other medications to control some of the side effects. And about three total months.

Patient Education

DR LOVE: So we’ll talk about the specifics, but then you’re looking at a few months then of receiving chemotherapy to reduce their risk of having the cancer come back and being a real problem. Before we get into more specifics, maybe we can just take a second and talk a little bit about what you’ve observed and how people respond personally to this situation. Do they go out and try to get information? Do they ask you a lot of questions? What are the moods they’re going through? How do they feel physically? What’s going on around that time?

DR WAKELEE: So, obviously, a lot of variability in that. After about a month, most people still have some discomfort from their surgery, but mostly getting back towards their normal lives. For many of them, they’d really like to just get the whole cancer thought behind them and that can be an issue as you’re thinking about ongoing treatment. It’s hard to continue thinking about therapy when you understand that everything that was visible is gone and so you want to believe that it’s really not there anymore. So that certainly plays a role and a lot of people are anxious to get back to their lives, to get back to work and taking care of families and that sort of thing.

And so the idea of an additional three months or longer of therapy can really have an impact there as people are thinking about their recovery. As I mentioned before, when I talk with them about what we can do to improve those cure rates, the only thing that we know has an impact is chemotherapy – three months of chemotherapy and it’s not easy chemotherapy. With our newer anti-nausea medications and with adequate hydration, most people can get through it but it’s challenging. And so we talk about the sacrifice of three months of time, that we know we’re going to delay recovery a little bit by doing that, but with the flip side being this improvement in cure, which could be as high as ten percent depending on the stage of disease that the patient has. And so that’s how we put it context and people’s responses are quite variable. I always try to frame it, again, in that idea of percentage of change of cure.

Risk of Cancer Recurrence — Adjuvant Treatment for Lung Cancer

And when this has been studied in the breast cancer literature, they have found a change. If it’s less than five percent, most people don’t want to go after it. If it’s more than ten percent, the vast majority do. And so with lung cancer, we’re somewhere in that five to ten percent range where there’s a lot of variation in how people perceive their risk and perceive what they’re willing to do to improve those odds.

DR LOVE: So what you’re saying is you could say to somebody “well your chance of having a recurrence and a real problem, let’s say it’s 35 percent, if you take this three months of chemo maybe that’ll come down to 30 percent or a little bit lower,” but what that means is that there’s a five percent chance or one in 20 chance that by taking the chemo, you’re going to actually avoid having a cancer recurrence.

Fast-Facts Lung Cancer Overview

DR WAKELEE: Right. Actually, I tend to flip things the other way when I’m talking to patients, so I tend to start off

with a “your chance of being cured right now is 60 percent and if we gave you this chemotherapy we could improve to 65, maybe as high as 70 percent. You will be going through three months of treatment to get that. A lot of ifs, though, about “a year from now, are you going to be looking over your shoulder and wondering if there’s anything more I could have done?”

I think that’s a lot of it because some people are able to walk away and not be constantly wondering what have I done? Have I done enough? Have I done enough? And for many people, it’s that idea of this nagging doubt that’s actually even a bigger player than the numbers themselves.

Obviously, we’re hoping that we can make an impact with the chemotherapy, but I try not to ever answer a question when patients ask me “well what would you do,” because I’m looking at from the context of me and having young kids and we know that that plays a role. And I don’t know what it’s like to be 70 years old and having some other health issues and trying to make that decision. And so I try to frame things and have people look at in the context of themselves and what kind of risk they’re usually willing to take and how comfortable they are moving forward, knowing that “maybe I could have done a little bit more, but it would have involved some sacrifices.”

Decision Aid for Lung Cancer

COUNSELING PATIENTS ON ADJUVANT THERAPY OPTIONS

DR LOVE: Right, and maybe experience a complication to chemotherapy, which we’ll talk about too. But again, just to clarify a little more in terms of what you mean by these numbers. I think it’s also maybe important to say that patients don’t need to hear these numbers if they don’t want. They can turn to the doctor and say, “I don’t want to hear the details, just give me your opinion,” but a lot of people do want to know about these. I think what you mean by, “Suppose it was less benefit,” would be if going from a cure rate of 65 percent, instead of going to 70 or 75 percent, it went from 65 to 67, or a two percent difference, then maybe that would appear differently to somebody who knows there’s a 10 percent chance or a one in 10 chance. So it’s kind of a tricky background to get involved with. Maybe we can talk a little bit about the kinds of chemo that are used and what you tell people to expect in terms of how it’s going to impact their lives.

DR WAKELEE: Right. I wanted to get back a little bit though to the point you were just making. I always ask people if they want to know the information. I found that the vast majority do want to know and it’s given to them as percentages. I think it’s misleading to tell people a median or an average survival time. But most people do seem to want to hear percentages because again, everyone’s going to look at that percentage a little bit differently – glass half full, glass half empty depending on the person. And there are some who don’t want to know, but for most people I think it’s important to have some sense of that range, of knowing that five to ten percent and where does it fit, and also to make sure we’re emphasizing that these are absolute differences.

DR LOVE: Right. And we’ve actually surveyed medical oncologists and we’ve actually surveyed patients, not just lung cancer but also colon and breast cancer, and what we’re seeing is in the last few years the offering of these types of numbers is really becoming routine. And as you say, in fact most people want to know the numbers and seem like they – when we’ve asked them, say “well we think we understand it.” So it seems a little tricky, but I think if people take their time they can understand it and really make a better decision. But of course, one of the things about that is “well what’s the downside?”

DR WAKELEE: Right.

CHEMOTHERAPY AND QUALITY OF LIFE

DR LOVE: And maybe you can kind of paint a picture, because there are a bunch of different regimens that are used or chemotherapy combinations, so it’s not like everybody uses the same thing. Maybe you can kind of paint a broad picture about generally what people experience.

DR WAKELEE: So with lung cancer therapy, almost always we use a combination of two drugs when we’re talking about this adjuvant or after surgery chemotherapy. One of the drugs is almost always a drug called cisplatin and cisplatin is a chemotherapy drug that’s been around for a long time. When we first started using it, it was a very difficult to get because it causes a lot of nausea and vomiting and can affect kidneys and do other bad things, but over the years we’ve learned a lot about how to give it safely. And so we now give it with a lot of intravenous fluids, fluid going in through the vein, to make sure that we protect the kidneys. And one of the great things about oncology that I’ve been able to witness over the last five to ten years is improvements in how we can control nausea and vomiting so that people really don’t have to suffer with those symptoms anymore for the most part.

There are exceptions where people have a hard time, but by using a cocktail of three or four different types of anti-nausea medications, most of my patients are able to continue to lead their lives without having the nausea be a major problem, even with the treatment.

Preventing Treatment-Related Nausea and Vomiting

DR LOVE: Can people work?

DR WAKELEE: Many of them do. I mean people do need to take off, obviously the day of treatment, a few days after. Many people decide they're not quite feeling up to working. I mean they've just been through a big surgery. The chemotherapy is draining, fatigue, which can build up over those three months of therapy is a big issue. Some people find that not working gives them more time to worry about their cancer and they don't like that. So I really leave it up to the individual and my patients who want to keep working, most of them are able to keep working. And patients who feel like they really need the time off, I think that some people really do need that extra space just to be able to rest and focus on their healing.

DR LOVE: When people ask you "how long will it be before I feel like my old self again," of course, they're not just recovering from the chemo, but also the surgery, what do you generally observe?

DR WAKELEE: Well the chemotherapy itself takes about three months as we've talked about before and going through the side effects, again, we can manage it with the newer treatments, but it does take a toll. People are fatigued. That fatigue persists for another, probably one or two months and so I usually tell people that by six months or so from the start of their chemotherapy, the chemotherapy effects will be gone. And that also tends to coincide with when most of the surgery effects are going to be getting better.

Chemotherapy for Early-Stage Disease

SIDE EFFECTS ASSOCIATED WITH CHEMOTHERAPY REGIMENS

DR LOVE: And again, there are variations. You mentioned cisplatin. There's also carboplatin that some people use, although I think most of researchers go for the cisplatin. What about other problems with cisplatin including the possibility of hearing loss?

DR WAKELEE: So the cisplatin does affect nerves throughout the body. The effects that we see predominantly are the numbness and tingling and even pain in the hands and feet, which can be debilitating. It can also affect the nerves that are important for hearing and so we do need to monitor patients closely for hearing loss. And I actually won't give cisplatin for a patient who already has hearing loss, particularly people who are already requiring a hearing aid. What we haven't said though was the carboplatin drug, which is a very close relative of cisplatin, does not effect the nerves in the same way. Potentially, slightly less potent, which is why we usually tend to prefer the cisplatin, but I have no problem substituting carboplatin for cisplatin in patients who have some underlying hearing loss or are not going to be able to handle the large volumes of fluid we have to give to protect the kidneys. Cisplatin is particularly hard on the kidneys.

DR LOVE: There are different drugs that can be combined with it. Can you kind of go through the common drugs that are combined with the cisplatin and what kinds of problems they introduce.

Prospective Randomized Phase III Trial of Triplet Chemotherapy Compared to Standard Doublet Chemotherapy in Advanced NSCLC

DR WAKELEE: Sure. So the one that's been studied the most is called vinorelbine and that is a drug that's given once a week. So it's given with the cisplatin and then one week later. That medication by itself doesn't cause a lot of nausea. It can affect the nerves; so cause numbness and tingling in the hands and feet, potential pain. It can affect the blood counts just like the cisplatin, like most chemotherapies, and that means that the white blood cell counts would be low, putting people at risk for infection. The red blood cells can get low, causing people to be anemic, more tired. And also the platelets, which are the cells that help our blood clot, those also can be affected by the vinorelbine as well as pretty much any of the chemotherapy drugs. That combination, the cisplatin and the vinorelbine, is the one that has been studied the most where we can really, with confidence, say we know if we give you this regimen that your benefit's going to be in that five to ten percent range.

However, many, many other combinations have been studied with metastatic or advanced stage lung cancer and we know that those are at least as good as the cisplatin and vinorelbine combination with different side effects. And so that's why most investigators, most physicians feel comfortable making the substitutions. And so the drugs that are sometimes substituted, there's one called docetaxel or Taxotere. That has the advantage of just being given once every three weeks. It in some studies was shown to be a little bit more active in metastatic disease than the vinorelbine. It is much harder on

blood counts. It also can affect the nerve system with the numbness and tingling and it does cause significant hair loss. And so that's an issue for a lot of patients.

Another drug is called gemcitabine. That one, like the vinorelbine, is given in addition to – with the cisplatin an – an additional one week later dose. That one does not cause the hair loss. It is very hard on the blood counts. It doesn't affect the nerves with the numbness and tingling. And so when I'm talking with a patient, we go through all of those variations and side effects.

The last one that's being more commonly used now with the cisplatin is called pemetrexed, which is a newer drug. That one has the advantage of also not causing the hair loss. It's not as hard on nerves and actually is not as hard on the blood counts. So its overall a little bit better tolerated than some of the other medications, but it doesn't seem to work very well in the squamous cell type of non-small cell lung cancer, at least in the advanced stage disease. And so I think most of us would not recommend it for patients with that type, with the squamous cell type.

DR LOVE: What about docetaxel? I know one of the potential issues there are problems with their nails. What happens with that?

DR WAKELEE: Patients can get discoloration of the nails. It's something that is more cosmetic and it grows out over time. And so I tend not to emphasize that too much. They end up with a few stripes sometimes in the nails.

DR LOVE: What about fluid retention? Do you ever see that?

DR WAKELEE: We do rarely. And so patients do need to take steroid medication. That's something I should emphasize. With the cisplatin, we usually will give steroids for several days thereafter to help with the nausea, but taking four days of steroids every three weeks can have effects, particularly in patients who are diabetic. And the cisplatin is a concern in those patients also with the kidney toxicity. Docetaxel does require steroids as well as does pemetrexed to reduce some of the other side effects in the case of pemetrexed rash. With docetaxel, fluid retention.

DR LOVE: And I guess in terms of the diabetes, the issue there is that the steroids can make the sugar or the glucose more difficult to control.

DR WAKELEE: Correct.

DR LOVE: Any other issues with the steroids? I know some people get kind of hyper. They have trouble sleeping and stuff. What have you seen with that?

DR WAKELEE: Absolutely, that can be an issue. And so when we're giving people steroids, we warn them that they might have trouble sleeping, that they might have a lot of energy and conversely, once they stop the steroids, could really crash. And so with some people we do have to prolong the time that they're on it, up to about a week or so.

RISKS ASSOCIATED WITH CHEMOTHERAPY

DR LOVE: What are the chances that someone could actually die as a result of receiving the chemotherapy?

DR WAKELEE: So, with the studies that have been done with it, it's less than half of a percent. It is something we do talk about. The biggest risk is in patients when their blood counts drop, they are at risk for infection and it can be a very, very serious infection. I always warn my patients getting chemotherapy that if they have any hint of a fever, they need to call right away, even if it's 2:00 in the morning and usually come in for evaluation. Not to take a Tylenol and see how they're doing in the morning because very rarely, that can be fatal.

The biggest risk is that we all have bacteria throughout our body, particularly in our intestinal tract and when the blood counts drop, some people are more susceptible to having those bacteria get out of the gastrointestinal track, get into the bloodstream and cause a life-threatening infection. And so that is the major risk from chemotherapy that can be fatal. However, it's very rare. As long as people heed the warnings and hear the warnings clearly that if they get a fever it is an emergency when they're having chemotherapy and they need to get to an Emergency Room and get started on antibiotics right away.

DR LOVE: Now when you say that people should call if they have even a hint of a fever. I mean one degree, two degrees. If they have chills I guess you get more concerned?

DR WAKELEE: Right. If they're shaking chills, very serious concern and number-wise we go with 100.5 or 38 Celsius. That's what I tell my patients anyway is to have a thermometer and actually check.

DR LOVE: What are the other things that you ask patients to tell you about or call you about, if any?

DR WAKELEE: We give patients nausea medications to have at home, but I tell them if they're not working, if they're

still having vomiting they need to let us know right away because we can then bring them in, give them fluids by vein, give them medications by vein, and keep them from getting really dehydrated. The other risk, of course, is dehydration from diarrhea, not common but can occasionally happen and the flip side, constipation is also a risk with some of the medications. And so I ask people to stay on top of it, not call us when it's been a problem for five days, call us when it's been a problem for one. Anything that's just above and beyond what they would expect. I like to have a close communication, as I'm sure all oncologists do with their patients who are starting treatment with chemotherapy.

DR LOVE: You mentioned hair loss before. Do all these treatments cause hair loss or – I mean you mentioned some of the drugs that don't. But do you see patients go through who have no hair loss at all?

DR WAKELEE: Almost all patients have some thinning, but the platinum drugs by themselves don't tend to do that, so cisplatin or carboplatin alone don't. When you combine it with gemcitabine or pemetrexed, most patients have some thinning, but no noticeable hair loss.

DR LOVE: And I guess we should say that if people do experience hair thinning or hair loss that the hair usually regrows once the chemo stops.

DR WAKELEE: Almost always.

DR LOVE: How long does it take to grow back usually?

DR WAKELEE: Hmm, it's months. Hair doesn't tend to grow too quickly, so by six months or so, so three months after the last chemotherapy most people have growth that they can clearly tell is coming back in. Most people are still choosing alternative head coverings at that point but by about six months after completion of chemotherapy, certainly by nine months, most people don't require that any longer.

Living Beyond Cancer

PORT-A-CATH®

DR LOVE: Now these drugs are given intravenously and I know a lot of patients get a so-called port. Can you explain what that is and when you use it?

DR WAKELEE: Sure. There's a lot of variability in that, but what it is is a device that is put in by a surgeon that has a reservoir where a needle can be put into that reservoir, which is under the skin and then is put directly into a vein, a large vein. And so what it is is patients just have a bump under the skin, but it's a bump that if a needle is put in it, the right proper kind of needle, the nurses are able to pull blood out and put the medications in without having to hunt around for a vein and then that access device can be taken out after the completion of chemotherapy.

I've found though that for most patients only requiring four months of treatment, so it's at most eight different times that they're coming in, most of them don't require that when we're talking about this kind of therapy. Most of them are able to get by with just having an IV started each time or something called a PICC – peripherally inserted central catheter – and those are very, very long catheters. They're basically IV tubes, but they're started in the elbow region and then it's very long tunneled into one of the bigger blood vessels. It's something done as an outpatient and it means that the patients have a – basically a tube sticking out of their arm for that three-month period and you have to be careful when you're swimming or taking a shower, but pretty easy to take care of for almost everybody and then it's just taken out. It doesn't leave any scars or any significant problems. And so there are things that we're able to do for patients with difficulty with IVs.

When we're talking about some of the experimental regimens where you need a full year of treatment, that can become more of an issue, but I find that for my patients with metastatic lung cancer where we're routinely giving care for a year or up to two, many of them don't need those access devices, especially if they're younger.

CLINICAL RESEARCH TRIALS IN NSCLC

DR LOVE: So one of the important options for a patient in this situation as an alternative to receiving chemotherapy as you've described, is to participate in a clinical research trial. And you're the head of really one of the most important, probably the biggest trial right now that people are looking to in this situation. Can you explain in general what the concept is of doing research in this situation? What are the trials out there, including yours, that patients might participate in?

DR WAKELEE: So the reason that we need to do more research is we're still only able to offer patients a five to ten percent benefit from chemotherapy. I usually point out that we wouldn't know that giving chemotherapy gives us a five to ten percent benefit unless earlier patients had gone on trials, the trials that looked

at either no treatment or giving chemotherapy, and because there were patients willing to go on the studies, we now know that we can offer other patients the benefit of chemotherapy. So we need to do the trials to move forward.

We're no longer doing any studies that are just giving chemotherapy to people, yes or no. There are some trials that are trying to direct the chemotherapy, where they look at proteins that are in the tumor itself or differences between people.

DR LOVE: Now when you say that's somebody is going to be in a clinical research trial though – because I think when people think about it they think about they're going to get some kind of an experimental medicine and just a few people might receive it. Whereas these trials that you're talking about are actually they're trying to get thousands of people to participate.

What Is a Clinical Trial?

DR WAKELEE: Right. So I should clarify more. The older chemotherapy trials were close to a thousand patients, one of the trials was almost two thousand patients and in those studies, after surgery people either went on to get chemo or not to.

DR LOVE: So it was random whether they got the chemo or not.

DR WAKELEE: Right.

DR LOVE: So they went into the study and the idea in that situation was kind of like a coin flip determining whether they get chemo or not and then see if the ones who got the chemo did better.

DR WAKELEE: Right. Exactly. And the trials that we're looking at now are looking at adding other medications. So the study that we're doing, everybody who goes on the trial gets chemotherapy. Half of the people, and this is picked at random, basically a coin flip as you said, in addition to standard chemotherapy will also get another drug called bevacizumab, which is also given by vein once every three weeks, and it's what we call an anti-angiogenesis drug, a drug that is affecting blood vessel formation. This is a drug that we know can add to chemotherapy for patients where the cancer's already spread; doesn't cure in that situation, but can prolong time before the disease grows and help some people live longer. And so we're looking at giving that drug in addition to chemotherapy for patients where the cancer has already been removed, hoping that that might improve cure rates. That's one of the trials.

CLINICAL TRIALS EVALUATING TARGETED AGENTS IN THE ADJUVANT SETTING

DR LOVE: What is known about bevacizumab or Avastin up to this point? Has it ever been used in this kind of a situation adjuvantly?

Lung Cancer Overview

DR WAKELEE: It's being studied in colon cancer and in breast cancer. And just this past weekend we heard some of the first results, which was from a colon cancer trial.

DR LOVE: We don't know for sure whether it's going to help in colon cancer and we certainly don't know for sure whether its going to help in lung cancer, but the hope is that it might.

News on Bevacizumab

DR WAKELEE: Right. And that's why we're continuing with the study. Some of the other studies that are going on, there's one looking at a pill drug called erlotinib or Tarceva. That is another drug we know works in patients with metastatic lung cancer and in this trial, patients going on can either have or not receive chemotherapy beforehand. And at the time they go on the study, they either go ahead and get this erlotinib pill for two years or they get a placebo pill for two years.

RADIANT — Erlotinib Clinical Trial Details

Another study is a vaccine trial looking at a protein called MAGE-A3. And that's a protein that's only in cancer cells. It's not in any normal cells. But it's not in all lung cancer; it's in less than half. And so with this study, patient's tumors are tested to see if they have that protein and if they do, they are then randomized, meaning coin flip, and half of them get injections of the vaccine and half of them get a placebo injections. So those are the three largest looking at newer treatments.

Vaccine Clinical Trial Details

And then there are also trials that are ongoing trying to better customize, better personalize the chemotherapy itself and most of those are happening in Europe, one in the US. In those trials, half the patients just get chemotherapy, no direction to it, just like we would normally. And the other half they

look for, again it's certain proteins on the cells to see if they can better select a particular chemotherapy.

DR LOVE: And the study that you're doing looking at bevacizumab I want to focus on a little more in terms of what the issues there are. But that's being conducted by what's considered a cooperative research group, in this case it's the Eastern Cooperative Oncology Research Group of which you're a part of. Can you explain what **ECOG** is and what a cooperative group is and how it works?

ECOG-E1505: A Clinical Trial Evaluating Chemotherapy with or without Bevacizumab

DR WAKELEE: Yeah. The cooperative group system is funded by the National Cancer Institute. There are four major cooperative groups within the United States. The Eastern Cooperative Group is one. Now I'm at Stanford, so it's not all Eastern, but that was the name given to it and it's predominantly East Coast institutions. And how it works is that the member institutions all work together to enroll patients onto these larger trials and the member investigators take turns as to one person leads one trial, another person leads another. We all work together to make sure we're offering the best possible trials to our patients with this cooperative agreement.

National Cancer Institute

The other cooperative groups, there's the Southwestern Oncology Group which tends to be geographically located in the Southwest, but a big range. And then the Cancer and Leukemia Group B is scattered throughout the country and then there's a more focused group, the North Central, which is centered around the Mayo Institute in Rochester.

Southwestern Oncology Group

Cancer and Leukemia Group B

North Central Cancer Treatment Group

ENROLLING IN A CLINICAL TRIAL

DR LOVE: So can any physician, for example in the United States, put a patient onto this study or they have to actually be a member of ECOG?

Eastern Cooperative Oncology Group

DR WAKELEE: They don't need to be. There is a central group called the CTSU and what they do is pool everybody who's in all of the cooperative groups. So even though this is an ECOG-led trial, an institution that's part of the CALGB can join the study. And people who aren't affiliated can also join through the CTSU mechanism. And so it is open throughout this country. And actually the National Cancer Institute of Canada Clinical Trial's Group has also joined. So it's throughout North America.

Cancer Trials Support Unit

National Cancer Institute of Canada Clinical Trial's Group

DR LOVE: Now what do we know about bevacizumab or Avastin? It hasn't really been used in the adjuvant situation in lung cancer and I think probably shouldn't be used until we find out whether it's going to work. And I think people aren't using it in that situation. But it has been used a lot in people with more advanced disease where the cancer has come back or maybe they started out with the cancer already in different locations. What do we know about it works, how effective it is? And what are the downsides?

Press Release: Bevacizumab

DR WAKELEE: Well the most striking thing when it's given with chemotherapy is that the chances of the cancer shrinking in a measurable way more than double and that's been pretty consistent in all the trials that have looked at it. It also has pretty consistently lengthened the time from when the treatment is started to when the cancer comes back, meaning when you need to switch to a different treatment. In one of the trials, it did show a significant improvement in overall survival. In another large trial it did not. So that's slightly up to a debate.

Basics of Survival Statistics

VEGF INHIBITORS AND MECHANISM OF ACTION

DR LOVE: So these people had advanced lung cancer but they lived longer in that one trial if they'd had bevacizumab plus chemotherapy.

DR WAKELEE: Correct.

DR LOVE: And that kind of led into this trial to look at it earlier I guess.

DR WAKELEE: Right. And also the philosophy of how does the drug work, well, it's altering blood vessels. When you already have a big tumor, we know that the blood vessels are very abnormal and the bevacizumab can change those blood vessels and perhaps improve the amount of chemotherapy that's going into them. On the other side, if you're dealing with micrometastatic disease after a surgery say, we can't see any cancer. We think we've cured the patient, but we know the cancer can come back in a lot of people. Why does that happen? It's because there are a few cells scattered here and there, what we call micro-metastatic. We can't see it. It's microscopic, but it's there. In order for those little microscopic areas to grow into larger tumors, they need to pull in blood vessels. And so the hope would be that the bevacizumab can stop that from happening and allow other mechanisms within the body to take care of those metastases that are there.

SIDE EFFECTS ASSOCIATED WITH VEGF INHIBITION

DR LOVE: Now bevacizumab is a very different kind of agent compared to chemotherapy. It's actually an antibody. I mean when we think about other antibodies people may have heard about, they might have heard about trastuzumab or Herceptin in breast cancer, rituximab in the lymphomas. So this works a little bit differently. Can you talk a little bit more about exactly what it does?

DR WAKELEE: Sure. So what it's binding is a protein called vascular endothelial growth factor, also called VEGF. And VEGF is really the most important ligand, meaning protein that's out in circulation that helps drive formation of blood vessels and also the proper formation of those blood vessels. And so if you can knock down the levels of VEGF, you can really reduce the blood vessel formation that's going on throughout the body.

Some of the side effects that we see with the drug relate to that. So we actually, because it's altering blood vessels, we see high blood pressure. Hypertension is one of the side effects. And it also is affecting the blood vessels within the kidneys and so we see some changes such as protein in the urine.

DR LOVE: Do you see high blood pressure and protein in the urine in everybody who gets the drug?

DR WAKELEE: No, not in everybody. But as time goes on, in a reasonable percentage. Now in the colon trial, when the looked at significant protein in the urine after one year, it was less than three percent. Blood pressure issues were in about 12 percent of patients who were getting the drug for a prolonged period of time as opposed to somewhere under five percent for those not getting the drug.

DR LOVE: So when people have their blood pressure go up, how much of a problem is it?

DR WAKELEE: It's manageable. I give the drug a lot obviously, for my patients with metastatic disease. It's an approved drug which is pretty active. I've had a few patients need to be on three – even one of them on four blood pressure medications, but I've never had to stop the drug just because of the blood pressure. We're usually able to control it, but it is something to be aware of.

DR LOVE: What about nose bleeds?

DR WAKELEE: That is also an issue. Again, it's almost always something that can be controlled. I have sent patients to the ENT physicians who can look for the area that's bleeding and do a simple outpatient procedure to stop it. Also, a lot of the times it relates to having a very dry nose and so patients are able to start doing nose sprays to keep that under control.

DR LOVE: Now other things that maybe have been brought up in terms of this drug, one has been the question of whether or not there's an increased risk of having either a heart attack or a blood clot or some kind of process like that. In this situation, how much of a risk, if any, is that?

Side Effects: Bevacizumab

DR WAKELEE: I think it is a risk. How much is difficult to say. In the lung cancer trials that have been done, the risk of having what we call an arterial thrombotic event, which would be a heart attack or a stroke, most of the trials weren't that much higher, but in other disease types it has been seen. And I think it is something we need to be aware of.

In the colon cancer trial that was just reported on that was also in this patient population where they don't have any known cancer, they're trying to keep it from coming back. The risks were not that high, but they weren't zero either. I mean most of them – I think it's going to be less than a one percent difference, but it is something we'll need to watch and pay careful attention to.

DR LOVE: And I guess in some situations people have speculated it might even be more, five percent or even

more in people who've had prior heart attacks, etc. But it doesn't seem like those kinds of numbers have shifted the equation away from at least trying it in this situation.

DR WAKELEE: And I wanted to just add, we're being pretty careful about that. We don't allow anyone who's had a stroke or a mini-stroke to go on the adjuvant bevacizumab trial with lung cancer. And anyone with cardiac – heart problems can't go on if they've any active problems within the last six months.

ECOG-E1505: A CLINICAL TRIAL EVALUATING CHEMOTHERAPY WITH OR WITHOUT BEVACIZUMAB

DR LOVE: So, in this trial patients are going to get chemotherapy, but half of them will also get the bevacizumab. Now that continues after they stop the chemotherapy.

ECOG-E1505: Chemotherapy with or without Bevacizumab

DR WAKELEE: Correct.

DR LOVE: So they get it how often and for how long?

DR WAKELEE: It's once every three weeks up to a total of one year, counting from the day that they get their first dose of chemotherapy.

DR LOVE: And how do you find people feel once the chemo's stopped in terms of what the impact is on how they feel when they receive these injections every three weeks?

DR WAKELEE: Bevacizumab by itself is very, very well tolerated. I have a lot of patients on it again, with metastatic disease and energy goes up. The blood counts all return to normal. Hair starts to regrow if there was loss. There's no nausea or vomiting. It's really not something people are aware of at all other than if they end up with blood pressure problems or the protein in the urine. And those are things that we can watch and take care of. So it's not a significant lifestyle impact, other than you do have to keep coming in once every three weeks for a short infusion.

DR LOVE: How long is the infusion usually?

DR WAKELEE: The infusion's only 30 minutes. Patients do have to get blood drawn. They won't have to see the doctor every time. It's actually going to be only every other time, but the infusion itself is 30 minutes.

DR LOVE: So they have their blood counts checked on occasion also. So they're looking at the possibility that they might receive it. Suppose somebody were to say, "well, why can't I just try it?"

DR WAKELEE: Well, I think we don't know that it's going to help. The only way we can know if it's going to help is if we do the trials. We wouldn't have designed the trial if we didn't have strong hope that it was going to have an impact, but there are many trials in the past where we had lots of hope it was going to have an impact. And so it's really important to do the trials so we can know.

INVESTIGATOR PERSPECTIVE ON PATIENT CLINICAL TRIAL INVOLVEMENT

DR LOVE: What's your experience been in terms of when people are interested in being in a study like this. Are they usually doing it to help future patients? Or – I mean I guess in this situation if the computer assigns them to receive bevacizumab, they're getting a therapy they wouldn't have gotten and if it does turn out a few years from now that we know it helped, they would have benefitted. But what are people usually thinking when they consider this?

DR WAKELEE: I think it's a little bit of both. I try to ask people not to go into it with the idea completely that it's going to have an impact on them because I don't know. The real impact is going to be on future people with lung cancer and being able to tell them five years from now, hopefully, the bevacizumab is beneficial, or to be able to tell them that it isn't, but we know that and that's because we did the study. And so that's a difficult thing and each person is certainly go at it from a slightly different perspective.

I think most people do have some hope that it is going to benefit them personally and I certainly would hope that as well, but we just don't know. And so I do think that there is a component of altruism.

DR LOVE: What about if the patient decides they want to go on the trial, that at some point along the line they want to get out of it. Is that a problem?

DR WAKELEE: Oh, no. Every clinical trial patients have the choice to decide to stop participating at any time.

DR LOVE: Now also, patients have to sign what's called an informed consent, which is a paper document that goes through all the details, a lot of what you've talked about today. What's the reason for that?

DR WAKELEE: It's to make sure that patients are fully aware of what the potential risks are. In the setting of a trial, we don't know what the potential benefit is. We can't promise any benefit and so it's very important to make sure patients understand what all of the potential risks are. And the only way to know that is

to have it in writing. I know that when I have a discussion with a patient, particularly a long one, what I'm sure we covered is not always what they've heard and so the point of having it in writing is so that patients can go back and refer to it, have time to really read and digest, and ask questions based on that.

DR LOVE:

And of course, even in the informed consent document it reinforces the fact that it's totally up to the patient. They can receive therapy, the chemotherapy as would be standard without being part of the trial. And that it's really just totally up to them.

DR WAKELEE:

Yes.

Interview of Joan H Schiller, MD

INTRODUCTION TO ADJUVANT CHEMOTHERAPY

DR LOVE: (Program Narration) For another perspective on adjuvant therapy for lung cancer, I visited with Dr Joan Schiller, who reviewed many of the concepts discussed by Dr Wakelee but from another perspective. To begin, Dr Schiller commented on how patients end up in her office for a consultation to consider adjuvant treatment.

DR SCHILLER: Usually they come from either a pathologist or an interventional radiologist who's done a biopsy. And someone has told the patient that they have cancer and have referred them to me. And the patient usually comes in pretty scared, not knowing what's going to happen.

DR LOVE: And so in the adjuvant situation, are you usually seeing them after the surgery?

DR SCHILLER: After the surgery, yes.

DR LOVE: Right. So, at that point they've had the surgery and they've come to you. Can you talk a little bit about what adjuvant therapy is, what the idea is behind it?

DR SCHILLER: Although hopefully the thoracic surgeon really did get it all, so to speak, the thoracic surgeon's not perfect. And there's always a chance that a couple of cancer cells may have been left behind, either at the site of the original tumor or may have gotten into the bloodstream even before the operation and gone someplace else. So, there's a chance that there might be microscopic amounts of cancer somewhere in your body that we just don't have any good enough tests to see.

And so for that reason, because we know that based upon the size of your tumor, that there is a chance this cancer will come back, – there's a chance that that has, in fact, happened to you, that we would recommend giving some additional form of systemic therapy. And we would suggest systemic therapy, meaning whole-body therapy, because the cancer cells may have gone essentially anywhere in your body. Now, they may not have. You may be cured just sitting there. That may never have happened, but unfortunately none of our tests are good enough for us to be able to say this person's got residual cancer cells, and that person does not.

DR LOVE: So, what about the possibility of just waiting and seeing whether the cancer comes back and then just treat it at that point?

DR SCHILLER: That certainly is a possibility; however, once lung cancer comes back, it's rarely curable. Not 100 percent of the time, but usually it comes back kind of in spades, so to speak. And it's usually not resectable and not curable.

DR LOVE: And if, by taking this additional chemotherapy, does that mean that pretty much it's not going to come back, period?

DR SCHILLER: Unfortunately, no. Realistically, there's always the possibility that just sitting there, you don't have any micrometastases and you don't really need this therapy. And realistically, there is the possibility that you do have micrometastases, but they are not all killed by the chemotherapy, and that the cancer will come back regardless.

Now, having said all that, we do know from studies, however, that as a group, patients with lung cancer who have this additional therapy are more likely to live longer than those who have not.

DR LOVE: And how do you determine what the actual risk is of the cancer coming back and how much that might drop by taking the chemo?

DR SCHILLER: So, the risk of it coming back is based upon the size of the tumor. Obviously, the larger the size, the more chance that it's had to grow and to kind of sit around and to possibly still be there. And the other big risk factor that we look at is whether or not any lymph nodes are involved, because cancer will often spread through the lymph nodes to elsewhere in the body. So, if lymph nodes are involved, what that may mean, although we don't know for sure, but what it may mean, that they actually escaped out of those lymph nodes and have also gone someplace else.

TYPES OF CHEMOTHERAPY AND CHEMOTHERAPY-ASSOCIATED SIDE EFFECTS

DR LOVE: Can you talk a little bit about the possible types of chemotherapy that could be used in this situation and that are used?

DR SCHILLER: Typically we use what we would call doublet chemotherapy, meaning chemotherapy consisting of two drugs. Very typically, those two drugs are given either once every three weeks or perhaps twice during a three-week period of time. And very typically, they're given for a total of four cycles. Typically, one of

those drugs includes a drug called cisplatin. The second drug is more negotiable, so to speak, that we have several choices from which to choose. And which to choose depends in part upon logistical issues and side effect issues, perhaps more so than real medical issues.

DR LOVE: Now, you mentioned the cisplatin, but there's also another drug, carboplatin. Is that ever used, and what's the difference?

DR SCHILLER: So, cisplatin was discovered kind of before carboplatin. Carboplatin is a kissing cousin to cisplatin and was developed because it had a different set of side effects. Nonetheless, most clinical studies – most, but not all – have suggested that cisplatin is the more powerful of the two drugs and, thus, a patient is perhaps more likely to be cured with cisplatin, than with carboplatin.

SIDE-EFFECTS ASSOCIATED WITH CISPLATIN

DR LOVE: Now, what are the potential problems that you can get into with cisplatin?

DR SCHILLER: In terms of side effects of therapy, they are pretty much what most people have heard about in terms of chemotherapy. Some drugs will, in fact, give total hair loss, others will not. The good news is, is that with the better antiemetics, the better anti-nausea drugs we have these days, nausea and vomiting, which everyone really used to fear with chemotherapy in the past, is nowhere near the problems that it used to be. It used to be a major problem. Now, thankfully, for most patients, it is not.

Other side effects to chemotherapy in general include the fact that chemotherapy will also reduce someone's blood counts. And in particular, we worry about the white blood cell count, because that's what fights off infections. And if the white cell count goes down too low for too long, that means that the patient is at increased risk for developing an infection. And that infection could potentially be a severe one, such as a pneumonia that lands one into the hospital. Now, that's rare, but is certainly a potentially serious side effect.

In addition to what I've just mentioned, fatigue is a common side effect with cisplatin and many other types of chemotherapy. Usually it's not real, real bad. It's usually not so bad, for example, that patients are lying at home in bed all day. And if that were the case, we would want to know about it, because that's not supposed to happen. Many people are able to continue to work during the chemotherapy. Most people kind of cut back somewhat; they go down to part-time during the chemotherapy. Most people want to come home and take an afternoon nap, for example. But by and large, most people are able to continue their daily activities. And I think that's an important point to make.

Other side effects, which are very unique to cisplatin, is that it can cause kidney damage. And so for that reason, we have to keep the kidneys very well flushed with lots and lots of fluid. And because we give that fluid intravenously, that's what makes the treatment a long treatment day, because the nurses basically will be pumping you with a lot of fluids to keep on flushing the cisplatin out of your system.

Two other side effects, which are relatively unique to cisplatin, include ringing in the ears. For most people, that's not a problem, particularly since they're only going to get four doses of the cisplatin. And then another side effect of cisplatin can be some numbness and tingling in the hands and feet. And again, for most people, that's not a major problem with just four cycles of cisplatin, although both of those are something we would want to watch and follow, because both of those are potentially irreversible. Almost everything else that we've talked about, the hair loss, the fatigue, nausea, blood counts, are reversible and go back to normal once the cisplatin is completed, or chemotherapy is completed, but the ringing in the ears and the tingling of the hands and feet are not.

DR LOVE: What about the potential for hearing loss?

DR SCHILLER: So, if one continues to give the cisplatin despite the ringing in the ears, you're right. The next sequelae of that could be hearing loss. And again, it could be irreversible.

DR LOVE: Do you actually test people for it, or you just ask them whether there's a problem?

DR SCHILLER: You just ask them. And for most patients, this comes on very insidiously. And for most patients, it requires many cycles of cisplatin for this to be a problem, not just four. But it comes on so slowly that, in fact, if it does look like it's going to become a problem, you can reduce the doses.

DR LOVE: And you mentioned four doses here. So, the chemotherapy in this situation is just for a short term, and then it's stopped?

DR SCHILLER: That's right. It's usually for about 12 weeks, usually four three-week cycles.

- DR LOVE:** And how long does it take once the chemotherapy is stopped, for people to kind of feel themselves again, have their hair grow back, go back to where they were?
- DR SCHILLER:** It usually starts maybe about four weeks after the chemotherapy. It takes a little bit. It takes a couple of weeks for the fatigue, for example, to kind of go away. Hair comes back slowly, unfortunately. It only grows about half an inch a month, so that will take a while. Hair loss is not usually a major problem with cisplatin. It's often the other drug that causes it. And some of the other drugs that we typically combine with cisplatin don't necessarily cause it at all. So, hair loss is often not a major problem with this particular combination of drugs.

PLATINUM DOUBLET CHEMOTHERAPY OPTIONS

- DR LOVE:** So, maybe you can go through the other drugs that are then combined with cisplatin.
- DR SCHILLER:** So, for this type of treatment, the other drugs would include a drug called gemcitabine, which is a commonly used chemotherapy drug. These days we use it more for squamous-cell carcinoma, rather than adenocarcinoma.
- DR LOVE:** Now, when you say squamous and adeno, what do you mean?
- DR SCHILLER:** Squamous-cell carcinoma and adenocarcinoma are different subtypes of non-small cell lung cancer. Gemcitabine has got all pretty much the same effects that I just mentioned which is what most chemotherapy does in terms of the hair loss, possibilities of nausea and fatigue, and the drop in the blood counts.
- Similarly, with another drug, which is commonly used in this combination, and that is a drug called vinorelbine – the trade name is Navelbine. Navelbine, or vinorelbine, is a little bit unique in that it is given twice during a three-week period of time, which is also the same with gemcitabine. Those are both given twice during that three-week period.
- And then another drug, which is commonly used, is a drug called Taxotere. This one is only given once during the three-week period of time, but, again, has many of the same side effects.
- And then most recently, a fourth drug has been added as a possibility. And the name of that fourth drug is called pemetrexed, or Alimta. And this is a drug which is more commonly used for the non-squamous-cell type of lung cancer, such as adenocarcinoma. Alimta is given once every three weeks, and it has the advantage of causing relatively little hair loss.

TOXICITIES COMMON TO PLATINUM DOUBLET CHEMOTHERAPY

- DR LOVE:** What are some of the things that you tell patients to contact you or your nurse about?
- DR SCHILLER:** Certainly, nausea. As I mentioned before, nausea should be very well controlled. And one of the problems with nausea, though, is that if somebody experiences, they often don't feel like eating or drinking, so they get a bit dehydrated, and so they feel even less like eating or drinking, and they get more dehydrated, and it quickly becomes a vicious circle. So, we want to break that downhill spiral as quickly as we can. So, if someone is having nausea to the point where they're not really drinking very well, we would ask them to give us a call. We don't care so much about the eating part, but they have to be able to continue to drink.
- The other thing that we would want a call about would be fevers, because as I mentioned, most chemotherapy does reduce the white blood cell count, and a fever would suggest that, in fact, the patient has an infection of some sort going on. And if the white cell count is way down, that could blossom into a potentially very serious infection. So, we would want to start antibiotics sooner, rather than later.
- DR LOVE:** How much of a fever would it take?
- DR SCHILLER:** The usual number that we give is greater than 100.5.
- DR LOVE:** Do people ever die from receiving chemotherapy?
- DR SCHILLER:** Boy, it sure is pretty darn rare, fortunately, very fortunately. But occasionally, an infection can get out of control and, yes, there certainly have been cases where people have died. But thankfully, it is very, very rare.

DESCRIPTION OF CLINICAL TRIAL DESIGN

- DR LOVE:** Now, one of the possibilities that a patient could consider in a situation like this would be to be part of a research study.

Can you talk a little bit about kind of what kinds of research are done in patients in this situation, how you go about doing it?

DR SCHILLER:

So, obviously, we want to improve how patients do with lung cancer. And the only way to do that is through research. And research typically involves development of new and better drugs. And so typically what we do is learn about those drugs in the laboratory. They get studied in a Petri dish or a flask. And if it looks like they're going to work in a Petri dish or a flask, then we often go on to study them in mice that have cancer, mice with tumors. And if it looks like they work in mice with tumors, then we try it in people.

And the first time it goes into people, those studies tend to be called Phase I studies. And Phase I studies mean that they're just coming out of the laboratory. We don't even necessarily know the correct dose, and we don't even know for sure the side effects in people. We may suspect we do, but we don't know for sure.

Once we have identified the correct dose and we're pretty darn comfortable with the side-effect profile, then we go into a Phase II study. And a Phase II study is a study to try to get a feel for how active the drug is or isn't. So, those are relatively small studies, anywhere from 20 to maybe 70 patients. And if at the end of that it looks like the drug really does have activity, then we go on to a much larger Phase III study.

And a Phase III study is designed to prove that the drug or drugs are better than the standard therapy. And in order to prove without any doubt whatsoever, one has to do what is called a randomized Phase III trial. And what that means is that half the patients get arbitrarily selected to receive the standard therapy and the other half are randomly selected to receive the new drug or drugs.

A Phase III study is a randomized study in which patients will either get the standard treatment or the new treatment. And that decision is not based upon any medical or scientific factors. It's truly random. A big computer someplace does the computer equivalent of tossing a coin. And based upon the computer equivalent of tossing a coin, the patient will get assigned to one or the other. And the reason we do it that way is because, otherwise, doctors are notorious for being kind of prejudiced. So, they might say, for example, "Oh, this younger patient looks like a great candidate for the experimental drug, but, oh, maybe this older patient maybe isn't."

And doctors will often bias the trial by putting one sort of patient onto one arm and another sort of patient onto another arm. So, for that reason, we let the computer arbitrarily decide.

CURRENT CLINICAL RESEARCH

DR LOVE:

What are some of the clinical research trials right now that a patient who's about to consider getting adjuvant chemotherapy might be able to go into?

DR SCHILLER:

Well, there are, the best of my knowledge, a total of three in North America, three possible adjuvant studies. One of those adjuvant studies involves a vaccine (**Vaccine Clinical Trial Details**). To be a candidate for that study, your doctor has to send your tumor to a central lab, and they have to analyze it to see if you're a candidate for this vaccine. And only about a third of all patients are.

A second study involves a drug called erlotinib, or Tarceva (**RADIANT — Erlotinib Clinical Trial Details**). And to be eligible for that study, your surgeon has to send your tumor to a central laboratory and they, too, have to analyze it and make sure that you qualify.

The third study is one which I'm involved with. And it is run by the **Eastern Cooperative Oncology Group**, or ECOG. And it is a study looking at the role of a drug called bevacizumab, or Avastin. And bevacizumab, or Avastin, is a new drug which is what we call a antiangiogenic drug. And what that means, Avastin doesn't try to kill the tumor. What it does try to control are the blood vessels growing within the tumor. So, it is a way of choking off the blood supply to the tumor.

Now, in this particular randomized study that we're involved with, half of the patients get randomized to chemotherapy, the standard of care, and the other half get randomized to chemotherapy plus Avastin. So, everybody gets chemotherapy. Everyone gets the standard of care. About half the patients will, in addition to that, go on to get Avastin (**ECOG Bevacizumab Clinical Trial Details**).

CLINICAL TRIAL RESULTS AND COMMON SIDE EFFECTS WITH BEVACIZUMAB FOR NSCLC

DR LOVE:

And what has been seen with Avastin when it's been used before? I guess it's been used in lung cancer in people who have had more advanced disease. What's been seen there in terms of its effect on the tumor and its side effects?

DR SCHILLER: Right. So, the reason we're testing it in this adjuvant setting is because we have tested it in patients with more advanced disease and have found that with chemotherapy, it can shrink tumors and help patients live longer. It doesn't cure anybody when given in the advanced-disease setting, but there now have been two studies in lung cancer which have been done, both of which have shown that if you get chemotherapy plus Avastin, you're more likely to have your tumor shrink and you are more likely to have it take longer before it starts to grow again. And one of the two studies also showed that you're more likely to live longer if you get chemotherapy plus Avastin.

Press Release: Bevacizumab

Now, just because that works in patients with more advanced disease doesn't necessarily mean it will work in the adjuvant setting. Obviously, we hope so. We think so, but we have to do the trial to prove it.

DR LOVE: What are some of the downsides in terms of side effects or risks of this?

DR SCHILLER: Side effects of Avastin can include hypertension. Usually that hypertension is controlled. Your doctor would give you regular high blood pressure pills. Other side effects include losing some protein in your urine, usually not a very serious side effect, usually not one that anybody would notice from a clinical standpoint. That's a laboratory test. In patients with advanced disease, another potentially very serious, but rare, side effect was that very rarely it could cause bleeding. We think the tumor was disintegrating so fast that it started to bleed. And a couple of patients, not many, but some patients did have serious problems.

DR LOVE: Now, this is bleeding in the lung itself?

DR SCHILLER: Bleeding in the lung. That's right. In this study, however, the tumor's been removed. So, we are not expecting to see any problems with bleeding in the lung.

DR LOVE: Now, it's been stated that bevacizumab, or Avastin, might be associated with an increase in clots, or clots in the legs, heart attacks, etc, strokes. It's been kind of tough to tease out how much of a risk that is. What's your take on that?

DR SCHILLER: Again, Avastin works on the blood vessels. So, anytime something works on the blood vessels, you worry about side effects related to the blood vessels; hence, the worry about the hypertension, for example. And also, hence, a worry about clots. And although everyone was worried about that when Avastin first got developed. More recently, the increase in risk of clots is very minimal. There probably is a slight increase, but it's pretty minimal.

DR LOVE: And what about how people feel when they're receiving the bevacizumab? Now, they get it not just during the chemotherapy for the 12 weeks, but then it continues out by itself without the chemo for a year. How do people feel when they are just receiving the Avastin without the chemo?

DR SCHILLER: Usually just fine. Because Avastin targets the blood vessels and not the rest of the cells in the body, like chemotherapy does, Avastin does not cause hair loss, does not cause nausea, does not cause fatigue. So, when it's given by itself, it's tolerated pretty well.

DR LOVE: I guess it's an antibody, huh?

DR SCHILLER: Right. Avastin is what we call a monoclonal antibody. We all think of antibodies as something that our bodies make in response to an infection. But it turns out that scientists can also make antibodies, but instead of targeting them toward a bacteria or targeting them toward a virus, in this case they've made them so they will target a blood vessel.

DR LOVE: The way you describe it in terms of generally not having too much of a negative effect on how people feel, not too high a risk of serious problems, I can imagine one thought would be, "Well, why not" – just for the patient just to try taking it without being in the study.

DR SCHILLER: So, right now it's not approved in this situation. And because of the expense of the drug, it is probably not likely to get reimbursed in this situation.

DR LOVE: So, the insurance companies wouldn't pay for it.

DR SCHILLER: Probably not.

DR LOVE: I guess the other thing is you never really know whether it's going to help or not or maybe cause a problem.

DR SCHILLER: Well, that's exactly right. And we don't want to make this standard of care until we know for sure, A, it works, and B, it's not going to have a lot of side effects.

CLINICAL TRIAL ADVANTAGES/PATIENT BENEFITS

- DR LOVE:** So, what happens if a patient decides they want to go in the trial and then somewhere along the line they decide, “Well, no. I really don’t want to be in the trial”?
- DR SCHILLER:** They can always stop. There’s no penalty whatsoever, so to speak, for stopping. You can stop at any time for whatever reason.
- DR LOVE:** This is kind of a difficult question, but I think it’s something important to ask, which is: Is there any financial benefit of a physician putting a patient on the study? Do they derive any financial gain?
- DR SCHILLER:** No, not at all. So, for this particular study, the study itself is paid for by the **National Cancer Institute**. They give it to this large group called ECOG, and the ECOG then gives it to the individual doctors. But it doesn’t go toward the doctors’ salaries at all. What it goes for is the research nurses and the research coordinators.
- DR LOVE:** Are there any advantages? I mean, obviously, one advantage to being in a study like this is that, if it turns out the patient, by computer, receives the new treatment, the bevacizumab, and if it turns out that it’s beneficial, they’ve benefited ahead of the pack. Are there any other advantages? Are patients followed more carefully if they’re in a study, for example?
- DR SCHILLER:** Yes, there have been numerous studies done, which have shown that even if patients get randomized to the control arm and not the new experimental arm, they tend to do better. And the reason they tend to do better is because they are being so closely followed. They’ve got a team of doctors and research nurses and research coordinators who are following them very carefully to make sure that they’re being conducted as per the study. So, yes, even if you don’t get the experimental drug, there is a significant advantage.
- DR LOVE:** Can you talk a little bit about the systems that are in place to try to protect patients who are involved in clinical trials? I know there’s one thing called the IRB, or Institutional Review Board. But what is that, and what are all the other things that are involved in protecting the participants?
- DR SCHILLER:** So, I think it’s very clear that we want to make sure that a patient knows what they’re getting into. And we call that informed consent. And to make very sure that we have informed consent, we have to tell patients not only about the possible good things about the study, but also about the possible risks on the study. And the way to make sure that doctors do that fairly and objectively is by getting a third party in there. And the name of that third party is the IRB, which stands for Institutional Review Board. And this is a hospital committee, which contains individuals from all walks of life, so to speak; physicians, not just oncologists, nurses, patients, regulatory people, from all walks of life. And they look at the protocol very carefully, and they look at the consent form very carefully to make sure that patients are being appropriately and fairly told the possible benefits and side effects.
- DR SCHILLER:** The only other thing I would say is, if it turns out that you, yourself, don’t benefit from the study in the end, at least you will have benefited other people who are following in your footsteps.
- I mean, this is the only way that we ever will make progress when it comes to cancer research, particularly lung cancer research. And every drug that we have right now, every drug that we’ve used, has been developed in this time-consuming, cumbersome, uncomfortable way. But nonetheless, it’s the only way we have.

RADIANT: A CLINICAL TRIAL EVALUATING ERLOTINIB WITH CHEMOTHERAPY AFTER SURGERY

- DR LOVE:** You mentioned a couple of other trials. Maybe you could talk a little bit about the **RADIANT** trial, and not so much the details of it, but just the idea behind it in terms of what they’re looking at and a little bit about the drug that they’re studying.
- DR SCHILLER:** Sure. The RADIANT trial involves that drug called erlotinib, or Tarceva. And just as Avastin is what we would call a targeted therapy, so is erlotinib, or Tarceva. But instead of targeting the blood vessel, like Avastin does, Tarceva targets something else entirely. And what it targets is a particular substance in tumor cells called EGF, epidermal growth factor. And if a patient’s tumor has a lot of this EGF, we hypothesize that they are more likely to respond or benefit from Tarceva.
- So, in this particular trial, as I mentioned before, the surgeon sends in the tumor to this central laboratory, and they analyze each patient’s tumor to see if they have a lot of this EGF. And if they do, then they would be a candidate for the study. If they don’t, then presumably they would be unlikely to benefit from Tarceva, because Tarceva only targets the EGF. And so if they don’t, they would not be eligible for the study.

PHYSICIAN ADVICE ON FOLLOW-UP RECOMMENDATIONS AND LIFESTYLE ADJUSTMENTS

- DR LOVE:** Is there any general advice that you give to patients at that point in time, both when they're about to get the chemo, while they get the chemo, and also recovering from the chemo; lifestyle, diet, exercise, anything that you say to them?
- DR SCHILLER:** We generally say to try to live as normal of a life as possible, both in terms of exercise, work, play and eating. In terms of diet, again, to eat as normal and as healthy of a diet as possible, but certainly mega vitamins or herbal therapies have not been shown to be helpful and could potentially be harmful. We would encourage patients to get out and do things and go to work, if they feel like it, because otherwise just sitting at home can be awfully depressing. The only time they have to be careful is when their blood counts are down and when they should avoid large crowds, such as in a movie theater or a shopping mall.
- DR LOVE:** Once the chemotherapy is done, what kind of plan is implemented in terms of following the patient?
- DR SCHILLER:** Well, on our study, 1505, the patients will be continuing to get Avastin, so they'll be continuing to come in every three weeks. If a patient was not on a study, typically their physician would have them come back every two or three months or so and would have them come back with either a chest x-ray or possibly a CAT scan.
- DR LOVE:** Now, is there a point in time at which, if the cancer hasn't come back, that the patient can feel pretty comfortable it's not going to come back?
- DR SCHILLER:** So, the magic time point that we use is five years. Typically, if somebody's out five years, we say that they're probably cured of their cancer. Having said that, however, the chances of it coming back are highest within the first year following their cancer, and a little bit lower, but still high in the second year, and lower in the third and so on.
- DR LOVE:** I'd like you to reflect a little bit on what you've observed in terms of how people personally deal with this within their families. What's the state of mind that you usually encounter in these patients when you first see them, right after the surgery, I guess, four or five or six weeks after?
- DR SCHILLER:** So, after the surgery, they often have mixed feelings. They're very glad that it's out, but they're very worried it might come back. For many people, getting chemotherapy after the surgery, if that's an option, they like that, because it means they're doing something to reduce the chances of it coming back yet again. And for many people, they actually have a hard time stopping the chemo, because as long as they're on the chemo, they're fighting their cancer. But if they stop the chemo, they see it as they're no longer fighting their cancer. And we have people who get depressed following that.

NSABP-C-08: RESULTS OF A COLORECTAL CANCER TRIAL WITH BEVACIZUMAB IN THE ADJUVANT SETTING

- DR LOVE:** Now, bevacizumab, or Avastin, has been used in a lot of different cancers, not just lung cancer, also breast cancer, colon cancer, renal cancer, ovarian cancer, but it really hasn't been looked at in a research trial in the earlier adjuvant setting that you're talking about here in this trial in terms of actually having a trial and then seeing the results until very, very recently, when the first report of one of the trials that was done. This was in colon cancer, came out. Can you talk a little bit about what they reported and whether you think that's relevant to this study in lung cancer?
- DR SCHILLER:** So, you're right. This just came out. This was a trial that was conducted by the **NSABP**, and it was just reported and so I think we're all still kind of digesting the findings. But basically it was for patients who had had their colon cancer resected, but were nonetheless still at a risk of it coming back. And so those patients were randomized to either chemotherapy alone or chemotherapy plus Avastin.

Press Release: Bevacizumab

And what they saw was that the patients who received the chemotherapy plus Avastin, it took longer for the cancer to come back. And for a while, it looked as if those patients were doing better than if they had just gotten the chemotherapy, but that was only for a year or two. After a year or two, it didn't look like the Avastin was of any additional benefit. We're not sure why that would be the case, why it only looked like it worked for a year or two. One hypothesis is that it was only given for one year. And one hypothesis is maybe it should have been given for longer than one year and that by years three, four and five, the effects kind of wore off. We don't know.

- DR LOVE:** Do you think this has any implications for this lung cancer trial?

- DR SCHILLER:** We have talked about that a lot, about – based upon the results of this colon cancer trial, does that mean we should give Avastin for more than a year? So, the colon cancer trial only gave it for six

months after completion of chemo. We're giving it for a whole year after completion of chemo. The question that has come up is: Should we give for two years after the completion of chemo? And in the ideal world, that would be good, but we're not in the ideal world, and it means coming back every three weeks for two years. So, at this point in time, although we will continue to address and readdress this question, at this point in time we're not changing the duration of the Avastin.

Interview of Patient 1, a Patient with Adjuvant NSCLC

REACTION TO DIAGNOSIS OF LUNG CANCER

- DR LOVE:** (Program Narration) The first patient I visited with was a mature woman who received adjuvant treatment four years ago.
- PATIENT 1:** I am grateful for the opportunity to share some of my experiences. I really feel that communication is very, very important and it's been much more successful with other cancers, and lung cancer is a hush-hush thing and it shouldn't be. So, I'm happy I'm here. So, feel free, Dr Love, to just ask me anything.
- DR LOVE:** That sounds great. How old are you?
- PATIENT 1:** I'm 72 and I was diagnosed in '05, I was 68.
- DR LOVE:** And what was going on in your life at that time?
- PATIENT 1:** I had just come home from a wonderful safari to Africa.
- DR LOVE:** Well, are you retired or working?
- PATIENT 1:** I'm a sculptor. So, sculptors never retire.
- DR LOVE:** Who's at home with you? What's your family constellation?
- PATIENT 1:** At this point, my husband and I have a very, very supportive family, which was extremely helpful. I have three children and one of my children – my daughter is a physician; she's an ophthalmologist – so it was extremely helpful to have her as one of my advocates. Advocacy is very, very important during this – one of the greatest tests of my life.
- DR LOVE:** What happened where you find out you had a problem?
- PATIENT 1:** I have allergies and it seemed that a few years before the diagnosis, I developed a adult-onset asthma and I had a terrible cough. And my grandson said to me "Why don't you have that checked." So, I did. I had a chest x-ray and it was clear.
- I came back from my adventure in Africa and three people, of my contemporaries, were diagnosed with lung cancer, all within a period of a few weeks. And I still had this cough and so I went to my doctor and he said, "Look, your chest x-ray's fine. A cough is not usually an indication of lung cancer," because I said "So and so, so and so and so on." And he said, "But if you would feel more comfortable getting a CAT scan, that's fine." So that's where we found it and it would not have been found by a chest x-ray. It was in the upper right lobe.
- DR LOVE:** Now, did you have any thoughts about maybe why you might have been diagnosed with lung cancer? Had you smoked in the past or do you smoke now?
- PATIENT 1:** I do not smoke now. I quit smoking in 1972. I did smoke. Very minimally. Maybe five or six cigarettes a day and in '72, when I was, I think, 35. I quit smoking and hadn't smoked since.

REACTION TO DIAGNOSIS OF CANCER

- DR LOVE:** What was your personal reaction when you found out what was going on?
- PATIENT 1:** I'm dead. I went back to my doctor to get the CAT scan report. He didn't call me. He knew that my husband and I were coming in for flu shots and he waited a few days and he sat me down and we discussed it and then he said, "There's something there. We don't know what it is," and he sent me to a pulmonologist. And the pulmonologist looked at me and he said "The good news and the bad news. The bad news is, yes, it looks very much like a malignancy. The good news is, it's confined and it's Stage I." And by the time I got to the pulmonologist, I decided I wasn't dead yet, but my husband was very, very – he was very good. When we walked out of my doctor's office, I said, "I'm dead," and he looked at me, he says, "Well, you're not dead yet. Let's go have a cup of coffee and discuss it." And it kind of helped. It was like, "Okay, I'm not dead yet." And three and a half years later, I'm still alive.

SURGICAL RESECTION OF A PRIMARY TUMOR

- DR LOVE:** So from there, I guess you went to have surgery to have it removed.
- PATIENT 1:** Yes. I went to a surgeon recommended by the pulmonologist. He said "If you don't like him, I can give you two or three other names." But my daughter and my husband and I went and we liked him immediately. He spent an hour with me and it was a Friday night.

I said to him “It’s Shabbat, but if you want to operate on me, I’m okay.” And he said “Let’s wait until next week.” And I had the surgery.

DR LOVE: And when you went back to see him after the surgery, what did he tell you in terms of what had been found there?

PATIENT 1: They did was they did a biopsy – an immediate biopsy in the operating room and he prepared me and told me that he was quite sure he would take out the entire lobe. And when he saw me after the surgery, he said he felt that it was confined. Stage IB, because of the size of the tumor. And that everything was clear. He said, “I think you’re fine. Because it was the size it was, we recommend adjuvant chemotherapy.”

ADJUVANT TREATMENT OPTIONS

DR LOVE: What had you heard about chemotherapy prior to that time or experiences with people who’d received it?

PATIENT 1: I have a few friends who had – they lost their hair. That was always like the crowning blow – excuse the pun – but it really is. But that you’ll get sick, you get nauseous. I didn’t hear good things. But one physician did say “Now that we’ve cured you, we’re going feel like we’re killing you, but we do feel that this is the best way to go.”

And so, I also have a very dear friend who’s an oncologist and he was another advocate. So I’ve been very blessed with support systems and he was very helpful.

DR LOVE: Now, how much detail did they get into with you in terms of the risks of the treatment, but also the potential benefits?

PATIENT 1: Well, the potential benefits – they clearly felt that I was cured and that the chemotherapy was additional preventative, I guess you’d say and the doctor did go through exactly what it would be – 16 weeks of weekly treatments of two different chemicals. One, every other week, the cisplatin, and the navelbine, every week infusions. The doctor felt I would lose my hair. At that point, it wasn’t important until it started falling out and then I realized, “yes, this really does make a difference.”

I was not as prepared for the side effects as I thought I would be. And one thing I’d like to say, Dr Love, is that I think it’s very, very important for a patient to have some control over their lives, and at a time like this, it’s very important to feel like you have some kind of control and I did everything I could for myself, as much as I could. I continued to exercise– even if I didn’t feel well, I always made sure I walked around the block if nothing else. I tried to get rest, which was sometimes very, very difficult and I kept my mind as active as I could.

SIDE-EFFECTS ASSOCIATED WITH CHEMOTHERAPY

DR LOVE: Now, when you say, “you weren’t as prepared as you might have been,” what were the things that you encountered that you weren’t expecting?

PATIENT 1: I felt so lousy and I don’t know if you can be prepared to feel lousy until you feel the way that you do from these treatments. I didn’t realize that the steroids that I took to help the nausea would make me so terribly, terribly uncomfortable.

DR LOVE: In what way? A lot of people get kind of hyper on steroids. Is that what you experienced?

PATIENT 1: Oh! I was off my rocker. I couldn’t sleep at night. My legs were bouncing. I didn’t know what to do. And in a very strange way, you’re extremely hyper. For me, it was terribly uncomfortable.

DR LOVE: Did some of the symptoms wax and wane? There were more after the chemo and it kind of got better for a while or was it the whole experience kind of the same?

PATIENT 1: No. No, just a few days and then I was okay for a few days. But weekly treatments are very difficult.

DR LOVE: And how did you feel at the end of the four months, in general?

PATIENT 1: Physically, I was very wiped. I was tired. I was really tired. I did not have my taste back – everything tasted like metal. And I was bloated from the steroids. So, physically, I was exhausted and wiped out. But mentally I thought, “Oh, this is great. It’s over. I’m all better now, I’ll never have any problems again.” And that’s the other thing. You think that everything else has gone away because you’ve been hit with this and so, that’s it. But, you know, I was 69 by the time I got toward the end of it, and life goes on and I still have arthritis and I still have asthma and I still have these different things to deal with. But it took me a year to get over the treatments.

DR LOVE: So, until you kind of felt back to your normal self.

PATIENT 1: Yeah. A good year.

DR LOVE: And what happened to your hair?

PATIENT 1: I lost about a third of it, not even that. Maybe 20 percent and lost all texture. But what I did out of that, I didn't like any of the head coverings, so I designed a head covering that I liked and a few other people liked it, so I started making them when I felt well enough during my treatments and I sold them and I supported National Lung Cancer Partnership that way.

DR LOVE: What about nausea and vomiting with the chemo? Any of that?

PATIENT 1: I did not have any vomiting and the nausea was not too bad. I didn't worry too much about my diet. I know I should have, but all I wanted to do was be able to get rid of that metallic taste. And so, I had taste for white. I ended up with mashed potatoes, milkshakes. I don't know what it was, but that seemed to satisfy me. But I wasn't terribly nauseous. I was just not feeling great.

DR LOVE: Any other side effects that you attributed to the chemotherapy?

PATIENT 1: Yeah. I had a little bit of numbness. Neuropathy.

DR LOVE: Where was it? In your hands or feet or what?

PATIENT 1: In my toes.

DR LOVE: In your toes you felt kind of numb.

PATIENT 1: Yeah. I had some neuropathy and I still have that in a couple of toes. But not badly. I really didn't have too many bad side effects.

PATIENT EDUCATION AND TREATMENT DECISION

DR LOVE: But it took you a whole year to recover. Do you feel that the decision about the adjuvant therapy, whether or not to proceed, which agents to use, do you think that was your decision or was really the doctor recommending it and you were kind of going along with it?

PATIENT 1: I thought that it was the two doctors – the oncologist and the surgeon – both recommended it because of the studies they've made. I agreed with them. I think the patient always has the right to opt in or out of anything they want to do. It's their choice. But my daughter and my husband and I and my sons, we discussed it and we felt I should go as far with whatever I can do to stave off any further cancer.

Decision Aid for Lung Cancer

DR LOVE: If they would have offered to try to further explain this to you by going into statistics about what the chance of cure would be with and without treatment or some of these issues, would you have wanted that kind of information or you rather just leave that stuff up to the doctors?

PATIENT 1: No. I wanted whatever information they felt comfortable in giving me. And the surgeon did discuss some statistics with me. And we're almost four years ago, so I'm not real clear on some of those discussions, but some of that was discussed. That – they really felt that they didn't know if the adjuvant was more helpful than – but I was prepared to do whatever I had to do. And I know a person who didn't do it, but she had Stage IA. And at that point, they weren't recommending any further treatment. With me, they've been recommending it at that point for about three years.

PSYCHOSOCIAL SUPPORT

DR LOVE: Do you think that you received adequate medical and psychosocial support during this whole time or do you think there are things that could have been done better or more effectively?

PATIENT 1: I think that's the weak area is the support. Medical care was superb.

DR LOVE: So it was more the support, the counseling information that you thought could have been better?

News Article: Need for Psychosocial Support

PATIENT 1: Yes. I think that it would help to almost have someone assigned to me, who I could email, who I could talk with. A patient has so many questions, so many fears. You feel so isolated. And I tried – anytime there – I went to a couple – I went to a makeup thing. Wherever I could talk with other people and it helped me a little bit and it helped my humor. It's hard to keep your humor when you're going through a life-threatening situation.

DR LOVE: You mentioned that patients in this situation often have a lot of questions. What were the kinds of questions that you had in the beginning and what kind of answers did you get?

PATIENT 1: Well, what caused it? That was a big thing. Was it because I smoked 35 years earlier, minimally, but

smoked? Was it because I was raised in Pittsburgh, maybe a mile-and-a-half from the mills that were going 24 hours a day making stuff for World War II. I'm ancient, so we go back quite a while here. Was it my ceramics studio. I work in different media now. I shut down my ceramics studio when I was diagnosed with this, and I worked in an unsafe environment because in the days that I was a ceramist, we weren't as cautious. I wore a mask, but didn't have the specific equipment as people work with now.

So, was it all those years of mixing glazes, of spraying glazes, who knows? And nobody had an answer for that. Nobody. And they don't have an answer for the smoking. I mean I know the statistics.

EFFECT OF CANCER ON PERSPECTIVE ON LIFE

DR LOVE: Has there been anything positive that came out of this experience for you?

PATIENT 1: I think any life-threatening experience that you survive can be positive, and I absolutely feel that I'm grateful to be alive. I cannot say that when people say that you need to live everyday, that's easy to say. But when you have – anything I have now is like "Oh, oh. The cancer's come back in another form." So once you've had, at least for me, and I tend to be a little bit overly sensitive, which is saying I'm really neurotic, but I think once you have something like this, you know it can come back. You know, you're not safe. That's life. And so, it took me a while to become adventuresome again. I've always traveled a lot. I'm independent that way. I like to do fun things. It took me a few years to get back to doing an adventure with friends, without my husband. I needed him a lot. I needed a lot of support.

And still. I'm always concerned if I have something, I think of the worst first.

DR LOVE: What are some examples where you've had things happen and you thought it was the cancer coming back and it wasn't?

PATIENT 1: Even with a cough and with the asthma, or almost anything, I'll say, "Uh, Is the cancer here or is it there?" And the truth is, I've had my body examined more than most people. I should be a little more comfortable about it, but I'm not. Frankly.

And I'm saying that. I'm not Pollyanna here. That's what it is.

DR LOVE: Do you think that that is getting better with time or is pretty much staying the same?

PATIENT 1: It's not getting better with time, but I think that's because of my age as well. I think it's partly that I'm not 35 or 40. But I'm 72.

DR LOVE: But I mean the concern when you experience something that maybe this is the cancer coming back. Does that pop into your mind as much now as it did a couple of years ago? Is it about the same?

PATIENT 1: Maybe a little less, but it's still there and it isn't so much the lung cancer – I know I'm cured from lung cancer. But some other kind of cancer can crop up. I have a lot of acquaintances and dear friends who have died from cancer. So, it's there. It's something that I think about.

DR LOVE: It sounds like maybe this experience has made you more aware of your own mortality, I guess. Have you ever had a serious illness before?

PATIENT 1: Not like this. No. The things I have are more chronic.

BLAME ASSOCIATED WITH LUNG CANCER AND SMOKING

DR LOVE: If you could give some advice or share something with a person who, let's say, is about to begin going down the road that you've already been down, what are some of the things you might want to say?

PATIENT 1: I'd like to speak specifically to lung cancer. It is not always your fault. You're not necessarily going to die from it. You can be cured and it can be managed. I think those are very important issues for people to understand.

DR LOVE: That's really interesting you bring up this issue of "it's not your fault" because that's certainly out on the table in terms of smoking, although I don't hear maybe people talking as much about diet and heart disease or etc. But do you share the fact that you've been treated for lung cancer with other people?

PATIENT 1: Every chance I get.

DR LOVE: Really?

PATIENT 1: Absolutely.

DR LOVE: And I'm going to guess that 90 percent of them, the first thing out of their mouth is "Did you smoke?"

PATIENT 1: No, 99.9 percent.

DR LOVE: How does that make feel when you hear that?

PATIENT 1: That they're not informed. That's all. That they're partly informed. There's one other way it makes me feel. It's as if they're looking at me and saying "Oh, well that won't happen to me, because I never smoked." But let me tell you, two of those three people never smoked who were friends of mine. Who were diagnosed with lung cancer.

DR LOVE: I've heard that from a lot of people who have been diagnosed with lung cancer. One person said something really interesting to me. She said, "When they ask me that, I say, "why do you ask?" In other words, she doesn't answer. She just says "Why are you asking me?" I thought that was kind of interesting.

PATIENT 1: Yeah. Well, I don't want to put people on the defensive about it. And I do understand. Often they'll stop and hesitate and look at me and I'll say, "I haven't smoked since 1972. I know that's on your mind, but let me tell you there a lot of people out there with lung cancer who have never smoked." You see it over and over.

DR LOVE: And for the people who do, I mean everybody does something – I'm not justifying it, but again, it seems different with lung cancer in terms of a lot of other things that people do that maybe have risk. I sometimes wonder if people are trying to protect themselves emotionally by saying "Oh, well, you smoked or whatever."

PATIENT 1: You mean that it won't happen to them because they're not smokers?

DR LOVE: Right.

PATIENT 1: You're absolutely right. But I think it is a self-protection, "Well that won't happen to me because I don't smoke." But then I start throwing some statistics at them and explain to them that it's a growing problem among women, a growing disease among women. And they're doing research, I believe, on that and they don't know what is the cause of that. It's out there. I have no idea why I got it. No one else in my family has ever had any – in my immediate family – my parents – my mother died at the age of almost 97; my dad at 87. My brother is older than I am. He's an asthmatic, but he's fine and clean.

And so, who knows. Was it the ceramics? I don't know. Something in my system that connected with – and that's why I feel vul – I still feel vulnerable. Something was weak in me and maybe that's a psychological issue too, I don't know. But in my body, that allowed this to grow. I can tell you I was diagnosed a few months after my mother passed away and I can tell you the previous ten to 12 years were very stressful years for me. I had a lot of responsibility.

COPING WITH CANCER

DR LOVE: I think almost everybody feels vulnerable after going through this kind of experience. What are things that give you strength?

PATIENT 1: Well, certainly the love of my family. I just have so much support and my love of life. I just have a good time, sometimes. Not always. And I love my work. And I just live.

I think it's very important for people to do as much as they can for themselves when they're going through something like this. And people say "it's stress." And I think stress has a tremendous amount to do with making your body vulnerable. And that's why I brought up that I was under a lot of stress for ten or 12 years and I think that may very well have caused my body to be put in a vulnerable situation.

DR LOVE: Just out of curiosity, does exercise fit into your lifestyle?

PATIENT 1: Tremendously.

DR LOVE: What do you do?

PATIENT 1: I do a system called the Egoscue Method, which is kind of an alignment thing which is extremely interesting and I've been doing it since 1998. I do Tai Chi almost every day of my life. I swim. I walk. I hike and I bike. And I snowshoe and cross-country ski.

DR LOVE: How does that all that fit into de-stressing?

PATIENT 1: Oh, you have to do it. I couldn't sleep if I didn't do it. It's just very, very important. I mean I do at least two hours a day of something most every day. It's just part of my life and I think as you get older, you must make time for it if you want to feel good.

ADVICE FOR PATIENTS WITH LUNG CANCER

DR LOVE: Well, this has been great. Anything you want to add to what you said today?

PATIENT 1: When I saw my surgeon recently for my annual check up, – great, great guy – and I asked him “If you were to talk to a group, what would you tell them about lung cancer?” And he would say, “Tell them it’s not necessarily your fault and you don’t necessarily die from it.” And those were the two things that stuck out for him. And with me, it is that if you were diagnosed with this, do everything you can to help yourself. I did acupuncture. Let me mention that too, to help with the nausea.

Anything you can do to feel like you have some control. And communication with your physician or the PA, whoever he has working with you is very important and I would encourage the medical world to spend a little more time on that field.

DR LOVE: I’m thinking too about somebody who’s in that year window that you talked about when you really didn’t feel well, and I guess another message that I get just from looking at you today is the fact you got passed that. You felt better again and I wonder if there are people out there who think “well, they’re never going to feel good again.”

PATIENT 1: You will. You really will. You’ll feel better again. You do. Yes, I feel great. I’m really great. And I was at a physician’s office for something else last week and I mentioned to her something that I had lung cancer a few years ago. And she said “Oh, you’re in remission.” And I looked at her and I said, “No. I’m cured.” It never occurred to me that it’s remission. No, it’s over. It’s history.

Interview of Patient 2, a Patient with Adjuvant NSCLC

DIANGNOSIS OF LUNG CANCER

- DR LOVE:** (Program Narration) The next patient I met with found that adjuvant chemotherapy was less troublesome than she expected.
- PATIENT 2:** I live alone and my primary interests are my grandchildren and I read anything I can get my hands on.
- DR LOVE:** And what type of work have you done in the past?
- PATIENT 2:** I worked in the banking industry for 35 years.
- DR LOVE:** Have you ever faced a serious health problem in the past?
- PATIENT 2:** Nothing as serious as my condition now.
- DR LOVE:** What was your reaction when you first found out that you might have cancer in your lung?
- PATIENT 2:** I don't know. I can't say I was expecting it because there was never any indication that it might be there, but I'm the type of person I just take everything with a grain of salt. And with the testing that they did, I became – before it was actually diagnosed for sure – I had already made myself believe “Yeah, that's what it's going to be.” Because as I say, I read a lot and I've always been interested in medicine and for some of the testing that they were doing, that's what gave me an inkling that there may be cancer in the picture.

DECISION TO QUIT SMOKING

National Cancer Institute SEER Cancer Statistics

- DR LOVE:** What had you heard about lung cancer before?
- PATIENT 2:** I can't say I've heard a lot about lung cancer. I know it can be serious and I knew you could survive it for a period of time.
- DR LOVE:** Now, do you smoke or have you smoked in the past?
- PATIENT 2:** I did. And I quit before my operation. The day before my operation, I'm not having – my operation was March 17th, March 16th was my last cigarette.
- DR LOVE:** And how much had you been smoking up to that point?
- PATIENT 2:** About a pack, depending – if I got myself all worked up about something; I might smoke a little bit more. But I was smoking at least a pack a day.
- DR LOVE:** And how did you find quitting? Was it difficult?
- PATIENT 2:** When I was in the hospital, they were giving me the patches. And also, the Cancer Society had run a program where they provided us with free patches and that's when I started, but the patches did not do a thing for me. I just, more or less, quit on my own.

TREATMENT OPTIONS AFTER SURGICAL EXCISION

- DR LOVE:** Now, you had an operation to remove this cancer.
- PATIENT 2:** Yes.
- DR LOVE:** What was that like?
- PATIENT 2:** I found out after it was very long, very tedious. I had wonderful nurses though, so my experience was very good.
- DR LOVE:** How long did it take you before you started to feel better?
- PATIENT 2:** I bounced back within a day or so. I don't know. It – I was ready to get up and move around and I was out of bed the next day, actually.
- DR LOVE:** When was the first time that the possibility of you receiving chemotherapy was brought up?
- PATIENT 2:** Let me see, that might have been about a month after I was out of the hospital. I spoke to Dr Soo who was the oncology surgeon, she said that after the operation, depending on how well I responded, it would be determined then whether it would be radiation, chemo or the two combined.
- DR LOVE:** So, you went to see Dr Evans who is a medical oncologist. What did she say to you about what your situation was and the possibility of getting radiation or chemotherapy?

PATIENT 2: They informed me that they were able to get all of the cancer out, but they wanted to give me four treatments to treat this and to make sure that the cells hadn't moved anywhere else.

DR LOVE: And did they talk to you about why they wanted to give the chemotherapy?

PATIENT 2: Yes.

ADJUVANT THERAPY AND PATIENT EDUCATION

DR LOVE: How did they explain it to you?

PATIENT 2: That was to treat any cells that may have gotten loose or – because the treatment is going all through my body, therefore if there's anything out there it would be attacked by the chemo.

DR LOVE: Now did they give you any numbers or statistics about what the chance was that you might run into a problem and how that might be affected by taking chemotherapy?

PATIENT 2: Well, there was literature, of course, of side effects from chemo. And I've been fortunate that I've not experienced any real serious side effects. I have some nausea the first couple of days after it. I've not had any vomiting. No hair loss. And nothing else seems to have changed with me.

Cancer Research UK – Chemotherapy Side Effects

DR LOVE: Did they bring up the possibility that you might be fine even if you didn't take the chemo?

PATIENT 2: Well, Dr Evans did tell me that some people elected not to, so the option was there if I decided that I didn't want this.

DR LOVE: And did they get into the issue of the fact that maybe, even if you got the chemo, you might end up having a problem or did you feel like if you took the chemo, that was going to be it, no problem?

PATIENT 2: Oh, no. I knew that there was possibility that – it's not a miracle drug. This is the way I looked at it. Sure, it's going to help me for – it could be three to five years, something like that. But I didn't expect it to make everything all better again.

UNDERSTANDING THE POSSIBLE RISKS AND BENEFITS ASSOCIATED WITH TREATMENT

DR LOVE: Now, did you feel that you understood what the possible risks of the treatment were and also, what the possible benefits might be?

PATIENT 2: Oh, yes. Because in any instance, if there's something I don't understand, I will ask questions or do whatever research I can to find out – get the answers I'm looking for. I just had wonderful medical care from all angles. The doctors were good. The nurses were good and are still. There's an open-line if there's anything that's bothering me, I know who to call. I've got a list of numbers.

DR LOVE: Are you actually going out on the Internet and getting information also, or you're mainly relying on your doctors and nurses?

PATIENT 2: I don't have access to the Internet. My daughter does. So if there's anything that I feel uncomfortable with, I'll get her to go out there and she'll get me information. But as I say, my doctors are so good that I have no problem getting information.

DR LOVE: Is there anything else, in terms of information that you didn't receive, that you think might have helped you?

PATIENT 2: I think the only thing that I can think of for myself – I just wonder how I got this and how long it was there before it was discovered. Now, I don't know that there's any way or any reason to be apprehensive and just think day to day, "I wonder if got this? Do I need to go get tested?" That's the only thing I can think of.

EXPERIENCE WITH SIDE EFFECTS

DR LOVE: Now what was explained to you and what were you expecting in terms of side effects and how did that compare to what you actually experienced?

PATIENT 2: I'd heard about the hair loss and that was one of my main concerns. And I don't know the reason why, whether it was the medication that she's using or actually whether she says she did not believe that I would lose my hair, which I have not. The only side effects I've had are the nausea, which comes not the day of, maybe two days after the chemotherapy.

DR LOVE: And how nauseous are you?

PATIENT 2: I have medication for the nausea and the last treatment I had lasted a little bit longer. Normally, it's

gone in two or three days, but this time it lasted a little – and I have a feeling and I’ve not mentioned this to anyone – questioned it, but it seems like that, possibly there’s a little bit of the previous treatments left when the next one’s given, maybe that’s why it was a little bit worse this time. And it wasn’t really bad enough for me to be overly concerned. I’ve never lost my appetite, my sense of smell and taste have not left me. I’ve just been very fortunate.

DR LOVE: Overall, would you say that so far, the experience has been a little bit better than you expected, a little bit worse, or about the same?

PATIENT 2: It has been much better than I expected. Much better. Now whether it’s the type I have, the medication, or the doctors or what it is, but as I keep saying, I’ve been very fortunate.

PATIENT/PHYSICIAN DECISION TO RECEIVE CHEMOTHERAPY

DR LOVE: Now, in terms of the decision to actually receive this treatment, do you feel that that was put in your hands or the doctor was kind of really trying to tell you what was best?

PATIENT 2: No. She gave me options. It was left up to me. If I’d said, “I don’t want it” I would not have had it.

DR LOVE: Before you started the chemotherapy, what were your concerns about it, if any?

PATIENT 2: As I’ve said, my biggest concern was hair loss. I thought I could probably master anything else.

DR LOVE: Up to this point, what would you say has been the greatest challenge of your receiving chemotherapy for you?

PATIENT 2: The needles. I don’t like needles and that’s because I have small veins and they do roll. The only other thing I’ve noticed from this chemo– I’ve been getting what they call, phlebitis, and it’s in the vein that they have the IV in, but it’s not at the site.

DR LOVE: So, it’s inflamed?

PATIENT 2: It has hardened like.

DR LOVE: Oh, it’s hard. Does it hurt you or is it tender?

PATIENT 2: It’s tender. It’s not real bad. It’s bearable.

EFFECT OF CANCER ON QUALITY OF LIFE

DR LOVE: How have people in your environment responded to what’s going on, your family, your friends, your acquaintances? What’s been their response to this?

PATIENT 2: Everybody’s fine with it because I really haven’t changed. Everything that’s going on with me has been internal. There’s nothing outwardly that you can see. I’m still the same old me. I’ve not been down or anything, not sad. I’m still upbeat.

DR LOVE: When you look at the support that you received, both medical support as well as just support as a person from the oncology office – doctors, nurses, your primary doctor or nurse – how would you evaluate that? Is there anything that could have been better or provided to you that might have been maybe helpful that you didn’t receive?

PATIENT 2: I cannot think of a thing.

DR LOVE: Is there anything in particular that you would want to share with people – you’ve already shared a lot of things – about the experience itself that you’ve gone through or receiving this treatment?

PATIENT 2: I think my biggest thing be open-minded and don’t compare yourself with someone else. Because even though you may have the same type of problems, each body is different, it’s going to respond differently. And don’t let – I don’t – and not only with this, but with anything, don’t let your friends and family say “Well, this happened to me and this is going to happen to you.” Don’t do that. If you have any questions or concerns, go to the doctor with it.

DR LOVE: That’s really great advice. Any other advice you might give to say, somebody who’s about to start going through what you’ve already been through?

PATIENT 2: Just be open-minded. Be happy because when you get yourself in a state like that, it works against your getting better.

DR LOVE: Right. Has this experience changed the way you look at yourself and your life at all?

PATIENT 2: No. It just makes me realize that “Hey, I’m human too. This can happen to me.” And I made it through.

DR LOVE: It seems like you have been able to go through this experience and keep –you looked, to me, pretty calm and accepting of what’s going on, not everybody can do that.

PATIENT 2: Right.

DR LOVE: What do you think it is? Is that just kind of way you are or what do you think it is that allows you to deal with this?

PATIENT 2: I just take one day at a time. It’s just the way I am with everything and anything. If it’s going to happen, it’s going to happen, okay. You can stand on your head and you can crawl on all fours, if it’s going to happen, it’s going to happen. I guess it’s just me. I’m – I’m a realist. I accept things for what they are. I think the Serenity Prayer was about the best thing I ever heard.

DR LOVE: The Serenity Prayer? What is it, God help me accept the things I cannot change, Change the things I can and know the difference?

PATIENT 2: That’s right.

DR LOVE: As I listen to you talk, I think to myself, “Hmm. I wonder whether or not I could react the way you do,” which seems to be a way that kind of works well for you.

PATIENT 2: It does for me. Yes, it always has.

DR LOVE: I think it would work well for anybody, but it’s just not necessarily that easily –

PATIENT 2: No, I can imagine it’s not. But I think if you can at all make any part of it work, it’s to your advantage. It would make what you’re going through a whole lot easier.

DR LOVE: How do people react when you tell them that you’re being treated for lung cancer?

PATIENT 2: Some of them, of course, want to go overboard and feel sorry for me and, but don’t. I don’t want anyone to do that. I’m fine.

DR LOVE: A lot of people who deal with this disease tell me that, when they tell other people they have lung cancer, one of the first questions they get is “Did you smoke?” Do you get that question?

PATIENT 2: Of course. Yeah. Every doctor I ever went to, whether it be foot, head, eyes, ears, the first thing they tell you is “quit smoking.” And I had no desire to before, until I found out about the cancer. Then I had no problem quitting.

DR LOVE: Do you feel regret about having smoked or again, kind of like in your philosophy of acceptance?

PATIENT 2: No. I can’t say I had a regret. It was something I wanted to do and I did and it was a learning experience. It’s just like if you slide on the ice, you may fall down. So, I smoked, I got lung cancer. And over the years, they’ve always said it can be a contributing factor and I knew this, but I still went on and smoked.

I’m not saying that it’s a good thing or was a good thing, I’ve tried to encourage my children to quit since, but again...

DR LOVE: Your children smoke?

PATIENT 2: Yes.

DR LOVE: Hmm.

PATIENT 2: All of them.

DR LOVE: Really?

PATIENT 2: Mm-hmm.

DR LOVE: That’s interesting.

PATIENT 2: Yeah.

Interview of Patient 3

REACTION TO DIAGNOSIS

- DR LOVE:** (Program Narration) The next patient I chatted with received her adjuvant therapy as part of a clinical research trial.
- PATIENT 3:** Actually, I was scheduled for a different type of surgery, a hysterectomy. Prior to that, you have to do all the preadmission testings – x-rays and what for – and that’s when the cancer was found.
- DR LOVE:** Had you had any serious medical problems in the past?
- PATIENT 3:** No.
- DR LOVE:** What was your reaction when you heard about this?
- PATIENT 3:** I was upset. I was so looking forward to surgery. I suffered a lot every month, so I was really looking to it, and I was scared.
- DR LOVE:** What’s your home situation?
- PATIENT 3:** I’m divorced. I have two adult children, one 22, one 33, and two grandchildren.
- DR LOVE:** And how did your children react to this news?
- PATIENT 3:** When I found out, well we did – I don’t know, other testing. So I contacted my daughter who’s been my rock. I mean I was very upset. I couldn’t stop crying. I just knew – I just saw this as a death sentence. And my daughter constantly talked to me and let me know “Mom, cancer doesn’t have to be a death sentence anymore.” She’s actually an employee of the hospital. And she’s been very supportive and she stuck by me and she went further to all my appointments. When they did the biopsy and everything, she was right there with me.

RECOVERY FROM SURGERY

- DR LOVE:** Now, you ended up having surgery?
- PATIENT 3:** Yes, December 17th I had lung surgery and part of my right lung was removed.
- DR LOVE:** And how did that go?
- PATIENT 3:** It went very well. It went very well.
- DR LOVE:** How long were you in the hospital?
- PATIENT 3:** From the 17th was the day of the surgery and I was released on the 20th.
- DR LOVE:** How did you feel when you got out?
- PATIENT 3:** I was sore. I felt okay. I was in pain. I could barely move my right shoulder because of they had to position me, going to surgery. They explained to me that’s why I so sore. So they had me doing exercises and I had a breathing machine, I tube that I had to blow into every so often to strengthen my lung.
- DR LOVE:** What did they tell you about what was found when they looked in there – when they looked at it under the microscope?
- PATIENT 3:** He explained that it was cancer, that it was in its early stage. He even drew a diagram for me so he can break it down to me and explain it all to me, where the mass was found and everything. And he was wonderful. I mean I didn’t even – I guess because of how he presented it to me and his bedside manner, I didn’t get upset right away.

REFERRAL TO A MEDICAL ONCOLOGIST

- DR LOVE:** So, was it the surgeon that brought up to the possibility of seeing a medical oncologist?
- PATIENT 3:** Yes. After I had the surgery, after so many weeks I had to see him again. And he came in the room. He had the greatest smile. He let me know that he got it all, but that he also recommended chemo and he recommended that I see Dr Tracy Evans for the chemo treatment. So, they set up appointment with her. And after meeting her, she advised me that she wanted me to have four sessions of chemotherapy.
- DR LOVE:** And how did you feel when you got the news that he was recommending chemo? What had you heard about it?
- PATIENT 3:** I guess it kind of bust my bubble, because I was so excited. He let me know that he got it all, so I didn’t understand the reason for the chemo at all. And I got upset. My daughter, with her working in

a hospital setting for so long, she was able to explain it to me. And she explained to me, “Mom, look. This doesn’t mean that he didn’t get it all.” That she explained to me, the way she put it to me, she said, “Mom, cancer is sneaky. And they just want to make sure that if it should have spread to any of the lymph nodes, that they get it.”

And I understood it. After meeting with Dr Evans, I mean – and she explained to me all the side effects and hair loss. I broke down again at the possibility of going completely bald.

COPING WITH A DIAGNOSIS

DR LOVE: Had you known anybody who’d gotten chemo or heard anything about it?

PATIENT 3: No. I mean prior to me being diagnosed with cancer, I wouldn’t talk about it. I couldn’t even say the word, I was so scared of that disease. That if a family member were to call me – excuse me. If a family member were to call me and say, “you know so and so came down with cancer.” I immediately get off the phone.

If I’m watching television and a cancer commercial come on, I’d change the station. I was that terrified of it. I was stuttered just saying the word. Of course, I don’t know, but I was petrified of it. So I didn’t want to know about it.

PATIENT EDUCATION: UNDERSTANDING THE RISKS AND BENEFITS OF THERAPY

DR LOVE: Do you feel that you understood the potential benefits and also the risks of receiving the treatment?

Cancer Research UK — Chemotherapy Risks and Benefits

PATIENT 3: Yes.

DR LOVE: What did they explain to you about that?

PATIENT 3: Well, Dr Evans, the oncologist, she explained to me, much like the way my daughter said it to me. That they just want to be cautious. The chemo was just a precautionary measure to make sure that if it were to spread. They also explained to me that cancer can return. They told me that I was in Stage II and they explained that cancer can return. That I didn’t know. Okay. And that was kind of scary.

But like I said, my daughter, I mean she just – I’m not explaining, she just kept me so lifted and she refused – it’s like she refused to allow me to believe I’m going to die. Because that was my first thought, that I was going to die. And I didn’t want my kids to see me suffering and then die on them. I didn’t want to go through all of that. So I was really scared at first.

DR LOVE: What did they tell you to be ready for in terms of side effects from the chemo?

Cancer Research UK — Chemotherapy Side Effects

PATIENT 3: They mentioned hair loss. They mentioned nausea. They mentioned kidney failure. Oh, it was so many things, because they gave me an information packet that they had put together with a whole of list of all kinds of possible side effects.

DECISION TO QUIT SMOKING

DR LOVE: Now, do you smoke?

PATIENT 3: Yes. I was a 35-year smoker.

DR LOVE: And when did you stop?

PATIENT 3: I stopped the end of December.

DR LOVE: So, when you found out about this, you stopped?

PATIENT 3: When I got out of the hospital, amazingly I hadn’t quit right then and there. The addiction was just so bad, but one day I just said – and I went out and I bought me nicotine patches. I did it on my own. And I just said one day, it was the end of December, just before New Years, and I said, “No, I’m not going to do this anymore. I don’t want to have to go through the surgery again” and things like that, and I knew the chemo was coming. And I just decided “I’m not going to do it.” I bought patches and I wore them for a while, but after a while they got irritating and I stopped using them and I just went cold turkey pretty much.

PARTICIPATION IN A CLINICAL TRIAL

DR LOVE: Now, did they bring up the possibility of your participating in a research trial?

What Is a Clinical Trial?

NCI Clinical Trial Page

- PATIENT 3:** Yes, they mentioned that. And I signed in and they explained to me how that works. And I agreed to it.
- DR LOVE:** What was your thinking in participating in this study.
- PATIENT 3:** I saw it as a way – my thought was, if it's anything that can possibly keep this cancer from returning, then I want to go for it. That's the way I saw it. "I'm going to go for it." And if it somehow end up being the wonder drug that they think it might be, it could possibly save other people lives. I don't want to see anybody go through what I went through.
- DR LOVE:** And so, did they explain to you that whether or not you had received the bevacizumab or the Avastin, would be a random choice that you wouldn't be able to control. You might or might not get it.
- PATIENT 3:** Yes. Yes, they did.
- DR LOVE:** And, I guess it turned out that you ended up being what they call "randomized." In other words, a computer selected you to actually receive the bevacizumab.

Bevacizumab for Lung Cancer

- PATIENT 3:** Yes.
- DR LOVE:** What did they say to you in terms of the possible risks of then taking that in addition to the chemo?
- PATIENT 3:** They just basically told me that Avastin have some side effects, but nothing like the chemo. So that sold me right there. If it had been anything like the chemo treatments, I probably wouldn't have agreed to it because that just really made me so sick.
- DR LOVE:** Did you feel that it was decision whether to get the treatment?
- PATIENT 3:** Oh, yes.
- DR LOVE:** And whether to participate in this study?
- PATIENT 3:** Yes. Definitely. Definitely. I mean, like I said, I figure if this – I'll go for anything that – especially when they told me how cancer can return. If there's any chance of me doing something that can prevent that from happening, I'm going for it.

EXPERIENCE WITH SIDE EFFECTS ASSOCIATED WITH CHEMOTHERAPY

- DR LOVE:** What was the first treatment like?
- PATIENT 3:** Oh, goodness. I would get it, for example, on a Friday because I had to get the treatments every three weeks and my first treatment was the 30th of January. And I would get it like on a Friday and two days later, which would be that Monday, that's when I got sick. And it was like clockwork; it was like after every treatment. And I would get – I'd notice a few days a few days after the first treatment, I combed my hair and noticed globs of hair coming out and I got a little nervous about that. But my daughter came over and just shaved the rest of it off. I had lost so much hair, that she just came over to save me the grief of being by myself, while it all come. So she just shaved it.
- But I got weak. I felt so horrible. Lightheaded.
- DR LOVE:** And how often did you get the chemotherapy?
- PATIENT 3:** I got chemotherapy every three weeks.
- DR LOVE:** And how long did you feel poorly?
- PATIENT 3:** Like I said, it would always start two days after the treatment, the illness. The first time, the very first treatment, I was sick for a whole week. Then there were times when I was sick a week-and-a-half. There was one treatment while I was sick for two weeks.
- DR LOVE:** But after you were sick, did you go back to feeling the way you had before?
- PATIENT 3:** Close to it.
- DR LOVE:** Were you working?
- PATIENT 3:** No. No. I actually went out on short-term disability from work, because I knew the aggressiveness of this treatment. So...
- DR LOVE:** Now you received cisplatin/docetaxel/Taxotere and then again, as part of the trial, you got the bevacizumab and Avastin. You mentioned what happened with – in terms of how you felt. Sometimes people

who get the docetaxel or Taxotere get problems with their nails. Did you have any problems with your nails?

PATIENT 3: With my nails? No.

DR LOVE: Mm-hmm. Any problems with tearing? Sometimes people have excess tearing with that.

PATIENT 3: No. Not at all.

DR LOVE: Right. And sometimes when people get the Avastin, their blood pressure goes up. Did that happen to you or as far as you know, your blood pressure was okay?

PATIENT 3: My blood pressure was always pretty good.

EFFECT OF CANCER ON EMOTIONAL WELL-BEING

DR LOVE: What was your mood like?

PATIENT 3: Oh, I was like a baby. I was crying all the time because I just felt so horrible. And I was just crying and I felt alone. I mean my daughter was there for me as much as she could, but she didn't live that close to me, so she couldn't be there with me all the time. And having children of her own and a husband, she couldn't be there with me. So, a lot of times I felt alone. I really couldn't cook, so my daughter would make sure she took me to the market and we bought like frozen meals and stuff like that so I can feed myself.

And that was hard too, forcing myself to eat, because I did suffer weight loss, but I was able to maintain it. I suffered weight loss before I was diagnosed. I didn't even know I had cancer. And I was losing weight, not knowing why.

DR LOVE: Now, how many chemotherapy treatments did you get?

PATIENT 3: A total of four.

DR LOVE: And then after that, the chemo was stopped, but then the bevacizumab or the Avastin was continued. Are you still on that now?

PATIENT 3: Yes.

DR LOVE: And now, when you were getting just the bevacizumab or Avastin alone, did you feel bad or you kind of felt like your normal self?

PATIENT 3: I felt like my normal self.

DR LOVE: You look well today.

PATIENT 3: Yeah. I just had a treatment as a matter of fact.

DR LOVE: And it really doesn't affect you?

PATIENT 3: No.

PSYCHOSOCIAL SUPPORT

DR LOVE: Do you think that the support you got – medical support and also maybe psychological or personal support, do you think it's been adequate or do you think it could have been better?

PATIENT 3: I think it was adequate. I think it was great. The support I got was wonderful. I mean the hospital even arranged for me to get rides through the American Cancer Society to and from the hospital to get my treatments and stuff. They even arranged for that for me. There were times when I was home and I got up to do something and couldn't do it. I felt so sick and ended up having to go back just to find out I was dehydrated. Dehydration was also a part of it. Even though I was drinking more water than I ever did in my life, I guess it wasn't enough. And I kept getting sick that way as well.

But I guess I wish I didn't have to be on such an aggressive form of chemo. But you know what, the way I see it now, I made it through it and I just – and I feel very fortunate today. I feel very, very fortunate today.

DR LOVE: Is there anything positive that's come out of this experience for you?

PATIENT 3: Yeah. I don't smoke anymore.

DR LOVE: Do you feel good about that?

PATIENT 3: Yeah. I'm very proud of myself. Thirty-five years is a long time.

DR LOVE: Do you feel different physically?

ADVICE FOR PATIENTS WITH NEWLY DIAGNOSED DISEASE

- PATIENT 3:** Yeah. I feel better. I feel better. I went back to work May 4th. I had the last, very last treatment April 2nd to be exact. And I returned to work May 4th. And I'm trying to get my co-workers to stop smoking. I'm always sharing my story.
- DR LOVE:** Really? And how do people react to you at work about this?
- PATIENT 3:** They're very happy that I was back and that I made it through it all. They won't quit smoking. But I can understand, it's not as simple as that.
- DR LOVE:** If you could sit down with somebody who's just at the beginning of what you've already been through, any advice or things you might share with them that you think would be helpful?
- PATIENT 3:** I would tell them to hang in there. That this is only temporary. That's what I would tell them. To hang in there and this is only temporary. And when it's all over, you're going to be so glad that you did it. That's what I would tell them.
- We tend to take so much for granted. And I would tell them, just live. Live your life. Don't take anything for granted, because none of us really know how long we have here. I mean even though I still have this positive attitude that I beat the cancer and things like that, I still have this little scary part inside of me. For example, when I have to be scheduled for a CT scan, because I know the purpose in it. They look for any reoccurrence. So that's kind of scary.
- DR LOVE:** Do you find that sometimes you feel things or see things and you think "well, maybe this is the cancer?"
- PATIENT 3:** Yeah. Yeah, because I never had allergies or anything like that before. So I've been noticing I have to clear my throat a lot and things like that. And I was like "Oh, my God." And I told my nurses that, the nurses that I meet with every three weeks, the research nurses, and I tell them. I said "Oh, my God. Is it the cancer?" And they say, "Well we know you did the CT scan. Everything turned back negative." So, I said "Oh, okay." She says, "You can also get that from allergies and things like that." I hadn't until the last year or two, I haven't had allergies before. So, all of this is new to me too.

Interview of Patient 4, a Patient with Lung Cancer

DIAGNOSIS OF STAGE III CANCER WITH NODAL INVOLVEMENT

- DR LOVE:** (Program Narration) The final patient I met with also received her treatment as part of a clinical research trial.
- PATIENT 4:** I went on the internet, so I pretty much knew what to expect. But they just explained to me that it was cancer. They said they got it all. They were going to have to send it to the lab to find out what stage. But the nodule definitely was cancer. And then, when I went back a week later, they said that the lab report came back that it was Stage III. They found evidence in two lymph nodes. But they had removed the lymph nodes and the nodule and the upper left portion of my lung. So, they said I had cancer and they were pretty confident that they got all of it.
- DR LOVE:** And at what point did they bring up the possibility of your seeing a medical oncologist and receiving chemotherapy?
- PATIENT 4:** Immediately. At that visit, they told me, which I already knew. And they called it sort of like an insurance policy, even though it was no guarantee, of course, because it may come back. But I was referred to the thoracic oncologist, Dr Wakelee. And I saw her probably another week after that.
- DR LOVE:** What was your state of mind in this initial phase when you first found out about this?
- PATIENT 4:** Actually, having been told that I might be IIIB and finding out that I was IIIA, I was pretty happy. I was relieved that they got it all, because I thought I was just going to have chemo. And I was pretty happy. And I really had a lot of confidence in the physicians.
- DR LOVE:** Can you talk a little bit about the information you received when you met with Dr Wakelee?
- PATIENT 4:** Well, they told me that I would be getting – the chemo medicine was cisplatin and then they asked me if I wanted to be in the clinical study, as well. And so they went over that. It was a very – I took that home with me and read it. It was about 30 pages.

WEIGHING THE PROS AND CONS OF CLINICAL TRIAL ENROLLMENT

What Is a Clinical Trial?

ECOG-E1505 Clinical Trial: Chemotherapy with or without Bevacizumab

- DR LOVE:** What did you take away from that in terms of the study itself?
- PATIENT 4:** Well, that there was different arms of the study and that not everyone gets the medication. I did not. I went into it where I didn't really have an agenda. I went back and forth thinking, "Okay, if we get the Avastin, I'm getting the gold standard anyway with the chemo, and I had surgery. So, that's good." And if I got that, too, we'd be getting everything we needed, bringing in all the heavy artillery. However, the side effects of the Avastin frightened me, because of the high blood pressure. But I was ready to accept whatever. It's a random study, and if I got the Avastin, I'd be going to Stanford every three weeks for a year. So, I didn't get it. And it's okay. I think I could have accepted either way. I think if you have your heart set on one way or another, then you shouldn't be in a clinical study. That was my feeling.
- DR LOVE:** What was your reasoning in entering the study? Were you thinking maybe it might benefit you or you were thinking maybe it would benefit somebody else in the future, or both?
- PATIENT 4:** To be honest, I was thinking it may benefit someone in the future, because probably before I got the cisplatin and the other drug, someone else had gone through a clinical study and they found out that it worked. And so at this point, I was feeling pretty good about maybe helping someone else.
- DR LOVE:** Hmm. Interesting. Had you had any preconceived notions about what clinical research or cancer research was? Or was this really your first exposure to something like this?
- PATIENT 4:** I would say I probably would be middle of the road on that. I wasn't completely in the dark, but I wasn't on top of it like a medical person would be.
- DR LOVE:** And do you feel that before you went into the trial and before you started therapy, that you had a pretty good understanding of what the risks and benefits were?
- PATIENT 4:** Yes.
- DR LOVE:** Was there anything that subsequently you looked back and said, "I wish I had known that," or do you feel like you got all the information you needed?

PATIENT 4: I felt like they did a pretty good job of giving me the information. I mean, most of it, we did discuss it. But most of it was the reading of the clinical study.

DR LOVE: Did you feel that it was being put in your hands and that you had the control to decide what kind of therapy or whether you wanted to be in the trial?

PATIENT 4: Yes. It was totally up to me. I could have changed my mind at any time. But the other good thing is you're followed closely if you're in a study, whether you get the drug or not. And that part, for me, definitely, was a positive. For me.

DR LOVE: What were your greatest concerns before you started treatment?

PATIENT 4: My biggest concern was that I thought I was going to be very sick for a long time. I have never experienced anything like this before. It's similar to morning sickness. I have three children. So, it's similar. But it's not as bad as I thought it would be. The fatigue is overwhelming, but it is not as bad as I thought it was going to be. I thought I was going to be throwing up all the time, and I thought that I was going to be – pretty much not be able to work and bedridden. And it's not. I'm a pretty strong person, but – I walked the day after chemo, a couple of miles.

CHEMOTHERAPY SIDE EFFECTS

Cancer Research UK — Chemotherapy Side Effects

DR LOVE: So, what kinds of problems did you actually have with the chemo?

PATIENT 4: I have four medications for nausea. So, I don't really get too nauseous, but I get a little queasy. And I think the worst part is – and this is my take on it – is around – I have chemo on Monday. And around Friday or Saturday, I don't feel very good. I feel crabby. And my children have told me that I bark at them.

DR LOVE: What about actual nausea or vomiting? Have you had that?

PATIENT 4: No vomiting and some nausea.

DR LOVE: Hmm. How about your hair?

PATIENT 4: It's thinning, but it hasn't completely fallen out yet.

DR LOVE: Any other symptoms or problems that you've noticed?

PATIENT 4: No. Other than the nausea on day five or six, which I wasn't anticipating, and the fatigue. That is the biggest one. I haven't had any of the others, like – I don't even want to jinx myself, but I haven't had any of the others that they said I might have. The hair thing really got me, because I have a lot of hair and it was really long. And now you can probably see it's really short. I got it cut short. But so far I still have some hair.

DR LOVE: Right. Yeah. It looks good. So, how many treatments have you gotten, or how far into the treatment are you right now?

PATIENT 4: I've had two treatments, and I have my next treatment on Monday, and the next one on September 7th, and then I'm done. So, there'll be four treatments.

SUPPORT SYSTEM TO HELP MANAGE DAY-TO-DAY LIFE

DR LOVE: When you look at the support you're receiving, both the medical support as well as maybe personal psychological-type support, anything there that maybe could have been better or needs that aren't being met right now?

PATIENT 4: I think – well, I didn't really expect a lot from the doctors for emotional support. They've given me everything I need, the questions, the nurses, everybody there. Family-wise, I think they're good. Friends at the beginning were really great, and then they kind of drop off, which is good in a way, because it makes me realize when this happens to someone else that I know – and it will – I will do things a lot different than I did. I thought I was a supportive person, but now I will not say, "If there's anything I can do, call me." I will say, "What time do you want me to bring your dinner?"

I have one friend whose husband is a physician, and she did that. She said, "I'm at the grocery store. What do you need?" I said, "I don't need anything," and then she showed up at my house with a bag of groceries. That's the kind of thing that I really appreciate.

POSITIVE OUTCOMES WITH CANCER

DR LOVE: Yeah. I can understand that. Has there been anything positive that's come out of this experience for you?

PATIENT 4: I think that having cancer has been a gift. It's been a gift to me to realize that I needed to take life one day at a time. I focused way too much on my work. I would get to work at 7:00 in the morning, leave at 7:00 at night. Now I'm forced to work four hours a day, come home, work in my garden, walk at the beach. I only have so much energy. And it's also the way I will be with other people. I always thought I was a really nice, sweet, supportive person, but in a lot of ways, I think it's been a gift. And it makes me appreciate everything so much more.

DR LOVE: How has it affected your interactions with your friends and family?

PATIENT 4: Well, I think I make sure to tell everybody when they leave, I tell them that I love them. And before, I might have just let it slide. I've always been really – I have three daughters in their twenties. And I'm very, very close to them. And this has made them closer. We were always a close family, so... But they were there. I had a daughter who lived on the East Coast. She was going to school on the East Coast, came home for the surgery, said, "I cannot not be there, Mom." And so she flew in for my surgery, was there. She said, "Whether it's good news or bad news, I have to be here." So, yeah, it definitely solidified those relationships.

ADVICE FOR PATIENTS WITH NEWLY DIAGNOSED DISEASE

DR LOVE: I wonder if you could maybe take a step back and provide some advice to somebody who is in the same exact situation you were in just a couple of months ago when you first got to the medical oncologist's office and you were hearing about chemotherapy and about this trial. Any advice you would give to a patient in that same situation?

PATIENT 4: The first piece of advice I would give them is: Do not go on the internet, because it is very scary. And I was going on, and I have stopped entirely. And I just listen to what my doctor says. I ask my doctors the questions. And I've gone to a couple of support groups, cancer-type support groups, but that's just to be with other people.

DR LOVE: Anything that you found on the internet that was helpful to you?

PATIENT 4: Yeah. I read the testimonials of the people that are still alive, that have the same thing that I do, that said that they took life one day at a time. They worked through it. I mean, it's all the things I already did, though. I ate right. I never smoked. I exercised. And so I feel like this – the loss of control is really upsetting to me. But I've accepted that, accepted that you can't control everything.

DR LOVE: What are some of the things that have helped you deal with this personally?

PATIENT 4: Well, I think my doctor, my surgeon, told me that my chances of long-term survival were excellent. And I can hear him inside my head saying that over and over again. And then my oncologist also told me, "You're cured," and I have witnesses to both of those things. So, that's very helpful. And I actually told the surgeon, I said, "Don't sugarcoat this for me. I want the truth." And he said, "No. It is not all gloom and doom. You have a really good chance. Odds-wise, percentage, 50-50 that I'll be alive in five years, but he still felt, because I'm so healthy and because they found it – even though it was in my lymph nodes, they technically considered it early, because it hadn't spread anywhere else in my body. I've had an MRI, and that came back positive. That was very helpful when that came back that everything was okay, that there was nothing there. That helped me a lot.

ANXIETY AND FEAR OF RECURRENCE

DR LOVE: When you do have concerns or you feel nervous or unbalanced, like all of us do, what are some of the things that help you get back on track?

PATIENT 4: Sometimes it's not easy, because I think now I'm doing something. I'm getting chemo. When the chemo's over, then we start waiting, and I get scanned. And I start thinking about – already, I have anticipatory anxiety. I just start thinking that there's nothing I can do. And today's a great day. And I also start thinking about when my kids have grandchildren. I imagine me and a new baby, those kind of things, the future. But mostly I just focus on all the good things that are happening now, because there's nothing that I'm aware of, that I can do.

DR LOVE: I was just thinking. Some people say, let's say, if they go take a walk or if they exercise or if they're with their friends or –

PATIENT 4:

Oh, being with people definitely is very helpful. I find that when I'm by myself—because I'm not married. I'm single, so I live alone. My kids are grown. So, if I'm by myself, especially in the middle of the night, I can put things way out of proportion. Then, like on 4th of July, I wasn't feeling very well. It was the chemo week. I went to a barbecue at some friends' house. I went to a parade. And I thought, "Boy, I feel pretty good." So, yes, I definitely think that being around people is very helpful.

DR LOVE:

Anything you want to add to anything you said today?

PATIENT 4:

There is one thing. Well-meaning friends will email me or tell me about – like, the most recent thing is the eating raw foods. Eat nothing but raw foods, and your cancer won't come back. That's not a very good quality of life and I might starve, but I'm already pretty much a vegetarian. I don't eat meat, really. But going to raw foods is kind of drastic. And I've received other things like that from friends. And I think they mean well, but I think that you just need to focus on your doctor. I think after the chemo, if there is anything that I can do that's been proven, I'll do it.

But I already kind of felt like I – it just wasn't fair, because I had been doing everything that I thought was right. And you read in the media, "Dr Oz is on Oprah," and you do all these things. And I did all these things. So, to get lung cancer when I'd never smoked and took really good care of myself, I felt, was really unfair. But I have now accepted it. And I realized that it isn't just people – I mean, I was naïve, because before, that's what I thought, too. I thought – not that smokers deserve to get lung cancer. No one does. But I wasn't at high risk, I didn't think. So, anyway, I don't know.

People will try to send you things in email and whatever of things – "Oh, doctors just haven't told you about this, because they want your money." Well, I don't believe that. I don't believe that.

But if there was anything that I personally could do to not have it come back, I would do it.

Interview of Beth Eaby, MSN, CRNP, OCN

PATIENT EDUCATION: EXPLAINING ADJUVANT THERAPY

- DR LOVE:** (Program Narration) The final person I chatted with was oncology nurse and lung cancer specialist Ms Beth Eaby who began by commenting on the usual condition of patients who are being evaluated for consideration of adjuvant therapy.
- MS EABY:** Usually, they're pretty well recovered from the surgery by the time they see us. We usually see them somewhere between three to six weeks postoperatively. And sometimes patients are still on a Percocet here or there or having some chest soreness. But for the most part, they've recovered from their surgical symptoms and they're feeling pretty good. They've been told about their diagnosis by the surgeon, usually, and it's usually pretty accurate. And I would say about 80 percent of the time, they know that they're there to discuss adjuvant chemotherapy.
- DR LOVE:** How do you explain to them what adjuvant therapy is? We interviewed four patients who've received adjuvant therapy for this program. And one of the things that struck me as I listened to them was that each one of them talked about being told by the surgeon that, quote, they got it all and, quote, they were cured, and yet they're coming in to be considered for chemotherapy. And those two things seem a little bit different. How do you explain to patients what's going on?
- MS EABY:** I hear the, quote-unquote, I got it all almost with every patient. And I don't want to downplay that, because I think it's important for their emotional status to say, "Yeah, they did. Your surgery was very successful, and you had the single best treatment for this stage of disease, which is surgery." But I tell them in as upbeat of a way as I can that – and all of it depends on their stage – but many times this has a better chance of coming back than not.
- And then they say, "Well, why would that be?" And I tell them, "Well, because a lot of times some of the cells" – sometimes I'll say – "got out of the barn," or they "migrated out from that original tumor, and they could be circulating in the bloodstream or the lymphatic system and we just can't see them right now on any kind of scan."
- DR LOVE:** And I guess the other thing that's kind of difficult – and it's not just lung cancer, because they see the exact same situation in breast cancer and colon cancer – that we can only make educated guesses about what the chance is that the cancer really still is there and is going to grow and get to be a problem. We can't tell for sure in any individual patient whether or not it's going to come back. Is that your take on it?
- MS EABY:** Yeah. I mean, I tell patients that they might be cured sitting in front of me, without taking any treatment. And they might get the treatment, and they could not be cured. And even though they got the treatment, it may not work. And we, unfortunately, at this time, don't have a good way to predict who that's going to be. And that's a large problem.
- DR LOVE:** We've talked to a lot of patients about that. And I think the idea of the fact that there's some kind of calculated risk and, if the tumor's bigger, the risk is higher, if the nodes are there, it's higher, but there's some kind of number. It might be 20-30 percent, or it might be, as you say, a situation greater than 50 percent that it might come back, and that the idea that that number, that risk, can be reduced somewhat, not made go away, but reduced somewhat with so-called adjuvant therapy.
- MS EABY:** Right. I mean, we discuss that. And a lot of patients will say to me, "Oh, so, this chemotherapy is like a life insurance policy or something," and I say, "Well, it is, but it's reducing the risk." I always feel that I have to tell them, "I can't say that taking this treatment is going to for sure make this not come back, because our treatments, unfortunately, aren't that good yet."
- DR LOVE:** I guess the one thing, though, that is important is to consider that the purpose of adjuvant therapy is to increase the chance of cure.
- MS EABY:** Absolutely.
- DR LOVE:** And are you able to sit down with any individual patient and, if they want, give them numbers on what their risk is of it coming back with and without treatment?
- MS EABY:** Yes.
- DR LOVE:** What would be an example of a situation, let's say someone who has a smaller tumor, relatively, and the nodes are negative, of that coming back with or without treatment?
- MS EABY:** So, if it was a Stage I – and we would break that down to Stage IA or Stage IB – if the patient has a Stage IA, we actually don't offer them adjuvant chemotherapy, because there's been no proven benefit

for that. So, I tell them that they probably have greater than 80-percent chance that they're cured from the surgery alone and that adding chemotherapy is really not going to benefit them.

DEFINING STAGE AND INDICATION FOR ADJUVANT THERAPY

DR LOVE: Now, you talked about stage. What is "stage"?

National Lung Cancer Partnership: Stages

MS EABY: In lung cancer, we base the stage on if you had lymph nodes that were positive and where the lymph nodes were and the size of the tumor. So, Stage IA would mean that you had no lymph nodes positive and your tumor was less than three centimeters.

DR LOVE: What would be a typical situation where you might offer or recommend adjuvant chemotherapy?

MS EABY: Well, certainly for a patient who had any lymph nodes that were positive. So, a patient who had lymph nodes either in the center of their chest, which would make them a Stage III, or local lymph nodes that were closer to the tumor, which we would call hilar lymph nodes. That would make them, usually, a Stage II. And then the size of the tumor now, we know matters more. And even if there were no lymph nodes positive, but the tumor was greater than four centimeters, we would still tend to offer them chemotherapy, because we feel there's a benefit there.

ADJUVANT CHEMOTHERAPY OPTIONS

DR LOVE: And what are the kinds of chemotherapy that are generally utilized in this situation?

MS EABY: We tend to base the chemotherapy with cisplatin as long as the patient is a candidate for cisplatin. It does have a lot of toxicity associated with it. So, if there's no other reason that we can't use it, then we would use cisplatin. The drug that we combine with cisplatin, now there tends to be a lot of reasons why we choose certain drugs. We used to use a lot of docetaxel. Now, with some more recent data, if there is an adenocarcinoma patient, we may lean towards pemetrexed.

NCI: Cisplatin

If there's some kind of reason we can't use one of those two drugs, we may consider vinorelbine or gemcitabine, just, again, depending on what the patient's symptoms are, risk factors.

PLATINUM-BASED CHEMOTHERAPY REGIMENS

DR LOVE: So, usually they're going to get two types of chemotherapy. You mentioned the cisplatin and then one of the other four. And then there's another type of drug that's similar to cisplatin, called carboplatin, that's sometimes used. What's the difference?

MS EABY: So, carboplatin is, we usually say, like a sister drug of cisplatin. It is a platinum-based chemotherapy and basically is the cornerstone of all lung cancer treatments in the first line or in the adjuvant setting. We would use carboplatin if the patient had an adversity to cisplatin. We feel that there is a slight survival advantage by using cisplatin. And when we're going for something in the curative setting, we want to use whatever has the best advantage. However, cisplatin has more renal toxicity, kidney toxicity, neuropathy, such as numbness and tingling, or hearing issues. So, if patients come to us with those symptoms, already having them, then we would lean towards giving them carboplatin.

CHEMOTHERAPY-RELATED SIDE EFFECTS — HAIR LOSS

Cancer.net — Hair Loss

DR LOVE: Let's start out thinking about a patient who's going to get cisplatin and docetaxel, which is what you said you had been using quite a bit. For that patient, what are some of the things that you would go through prior to them starting on treatment in terms of what to expect and when to notify you?

MS EABY: So, I do actually have a sheet made up for that regimen, that I made myself, because there's so much to go over, starting from everything from hair loss to lowering of blood counts.

DR LOVE: Can you kind of go through each one of those things and what you say about it?

MS EABY: Sure. So, sometimes I do just start from head to toe, just to try to categorize it all. And again, that hair loss issue tends to be a big one for people. So, I do tend to tell them that up front and say, "This does make you lose your hair, but it will grow back. And it's all your hair on your head, usually. So, that tends to happen at two to three weeks after the first treatment, so it doesn't happen right away."

DR LOVE: Just your head or the whole body?

- MS EABY:** Usually just your head. Men don't have to shave. But they don't necessarily lose their mustache either. They usually don't lose their eyelashes or eyebrows or body hair, in general. Usually it's just the hair on the head. But their hair doesn't grow. So, you don't have to shave anything.
- DR LOVE:** Now, when you consider that the patient, even though generally or a lot of times people use cisplatin, they could be getting carboplatin. And then you have the four other sister drugs. So, there are a lot of different combinations. Do all of these cause hair loss?
- MS EABY:** No. So, docetaxel would actually be the only one that causes hair loss in all of those drugs. So, if that's an issue, we certainly can switch to something else.

COUNSELING PATIENTS ON MANAGING LOW BLOOD COUNTS ASSOCIATED WITH CHEMOTHERAPY

Chemocare.com: Low Blood Counts

- DR LOVE:** What are some of the other things that you counsel people about?
- MS EABY:** So, certainly, lowering of blood counts. And it's both drugs. And usually with all of them, it's both drugs. So, I don't necessarily say, well, one more than the other. And then we go right into white blood cells, hemoglobin and platelets.
- DR LOVE:** Can you go through those?
- MS EABY:** Mm-hmm. So, I start with the white blood cells. And I tell patients, honestly, that's the most important, because that's the one that fights off infection. So, this is the one I'm most concerned about. And we routinely use growth factor support in our docetaxel/cisplatin patients.
- DR LOVE:** What are growth factors?
- MS EABY:** So, that would be an injection that you would get the following day, that helps keep your white blood cell count up between treatments.
- DR LOVE:** So, you have to come back to the oncology office?
- MS EABY:** Right. For us, we bring you back. I know some people have trialed doing it the same day, but we don't feel comfortable doing that. So, we do bring patients back somewhere between two and four days later.
- DR LOVE:** For one injection, or more than one?
- MS EABY:** One injection.
- DR LOVE:** Intravenous or non-intravenous?
- MS EABY:** Not intravenous. So, it's a subcutaneous injection into the arm.
- DR LOVE:** So, this is to try to prevent the blood count from going down, the white count?
- MS EABY:** Correct. Right. And we feel that's pretty important. So...
- DR LOVE:** Do all patients get these, or just certain ones?
- MS EABY:** If you're getting docetaxel and cisplatin, we give it to everyone.
- DR LOVE:** And is the blood count down the entire time that they're on chemotherapy or only some part of it?
- MS EABY:** No. It's usually only some part of it. So, we usually tell patients between about day seven and day 12, with it peaking right around day 10. We use the term "nadir," which is that time frame when their blood counts get low.
- DR LOVE:** How often do they receive the chemotherapy?
- MS EABY:** With this regimen, it's once every three weeks.
- DR LOVE:** And how many doses, or how many times?
- MS EABY:** Four times.
- DR LOVE:** How about the other ones, in terms of schedule?
- MS EABY:** If it's going to be the pemetrexed, it's also once every three weeks. For the gemcitabine or the vinorelbine, it would be usually two weeks on, one week off.
- DR LOVE:** So, there's an issue about whether or not their white blood cell count goes down. What are some of the complications that could be seen if the white blood cell count does go down?
- MS EABY:** So, one of the frightening things about it, as I tell patients, "You don't actually know your white blood cell count is down a lot of the times," because the people think, "Oh, if my counts are down, I'm going to feel really, really tired and fatigued."

That's actually not true. Usually people have the tiredness and fatigue right after the chemo. And then by day 10, they might be feeling better, which is actually the time that your counts may drop. So, the most concerning thing, of course, would be a fever. So, if they develop a fever during that time and their white blood cell count is low, we consider that an emergency and they need to be admitted to the hospital for workup of that, because your body's basically not able to fight off the infection.

TREATMENT-RELATED SUSCEPTIBILITY TO INFECTIONS

Treatment-Related Susceptibility to Infections

DR LOVE: When the patients do develop infections, what kinds of infections and where?

MS EABY: Because they've recently had surgery on their lungs, in my patients it many times can be a pneumonia or even a bronchitis with an upper respiratory infection. It can be a urinary tract infection. Often, we don't necessarily find the source. It can just be an infection that migrates into their blood stream and causes them to be very, very sick.

DR LOVE: So, that's the white blood cell count. What about the platelet count?

MS EABY: So, the platelet count would be affecting your ability to clot or to stop bleeding. We tell patients, "If you're having bleeding, like spontaneous nosebleeds, blood in your urine or stool, or even just if you're brushing your teeth and you have bleeding in your gums that just won't stop," those kinds of things are things that we would be concerned with, or excessive bruising.

DR LOVE: Now, what about the red blood cells, to make the patient become anemic?

MS EABY: Right. So, the red blood cells – and, in particular, we look at the hemoglobin and the hematocrit – the hemoglobin is probably the one we look at the most closely. And we do tend to sometimes have problems with this, usually not too bad, again, with adjuvant treatment, because there's not a disease process going on at the same time that could be contributing to it. And patients often feel tired, sometimes even short of breath when their hemoglobin drops.

MANAGEMENT OF NAUSEA AND VOMITING

Cancer.net — Nausea and Vomiting

DR LOVE: Okay. So, we've talked about blood count going down and hair loss. What else? A lot of people are concerned about and have heard about is nausea and vomiting.

MS EABY: Right. So, that would probably be next on my list to talk about. And this is where I usually call out cisplatin as being the culprit. Cisplatin is one of the most, if not the most, invoking of nausea/vomiting drug that we use. And we use a lot of medications, preventatively, to try to stop that from happening. We use Aprepitent, which is a preventative medication that you take for three days in a row, orally. We use a 5-HT3 inhibitor. Our drug of choice is ondansetron, which is Zofran. And we give that to them IV the day they get treatment, and we also give them a prescription to have at home, orally.

There is another medication called Aloxi, or palonosetron, which can be given IV and is supposed to cover you for a longer period of time. We actually don't have that on formulary at our outpatient cancer center, so we don't use it.

MS EABY: We also give a steroid, dexamethasone. So, with that three-drug regimen, I would say most people don't have vomiting. Probably about 10 to 20 percent of patients still do experience some form of vomiting. The control on nausea is much more difficult, because it's such a subjective thing. And I actually have studied this in depth. We did a study where we looked at patients and we asked them to describe the word "nausea." And we came up with everything from queasiness to unsettled stomach to not a good appetite.

Understanding the Concept of Chemotherapy-Related Nausea: The Patient Experience

DR LOVE: What's the time sequence of when this starts and ends?

MS EABY: So, if they're on cisplatin, patients usually start to develop the nausea or vomiting two days after treatment versus, if you're on the carboplatin, patients tend to develop it the next day. So, cisplatin just has this different way of affecting patients, where they usually have a good day the next day, and then the following day, and even day three, it tends to really peak and they feel the nausea or vomiting, and fatigue along with it.

DR LOVE: And how long does it last?

MS EABY: It usually lasts somewhere around three days. But every patient is different, and we certainly have patients that it'll last for weeks.

FATIGUE

ASCO Curriculum: Fatigue

DR LOVE: What other side effects do you see?

MS EABY: Fatigue, and fatigue not even related to anemia. So, sometimes we say, “Oh, well, if your red blood count is low, maybe you’re feeling fatigued.” But patients can have a normal red blood count and just feel overwhelming fatigue, very tired, don’t feel like getting out of bed or really doing anything.

DR LOVE: And again, what’s the time? Has this occurred continuously while they’re getting chemo, or it kind of goes up and down?

MS EABY: It often tend to peak around the same time of the nausea with the platinum drugs. And again, it depends what drug they’re using with it. So, we find this to be probably more profound with using docetaxel and a platinum together versus some of the other drugs. But it tends to be right after chemo, maybe delayed a day, but usually resolving within that first seven days.

NEUROPATHY

NCI: Nerve Changes

DR LOVE: What other side effects?

MS EABY: So, neuropathy, which would be characterized as numbness and tingling, usually in the extremities, the hands, the feet, maybe the legs. And also in that would be hearing problems associated with the cisplatin. So, either hearing loss or ringing in the ears that we think of as a neurologic side effect.

DR LOVE: And how often do you see each one of those problems?

MS EABY: I would say with the cisplatin, the hearing, since we only give four cycles of it, we usually don’t see it too often. Sometimes people have transient ringing in the ears that doesn’t last very long. It’s usually all gone by the time they’re done. In my patients, we use a dose of 75 mg/m², so we don’t tend to do prescreening audiograms and then post. A lot of head and neck cancer patients, we will do that. But in these patients, we don’t necessarily do that. They get their four cycles, they’re finished. If they’re going on beyond that, it does tend to become a problem.

DR LOVE: What about the neuropathy? How often do you see that?

MS EABY: The numbness and tingling, I do see more often. And with the cisplatin, it tends to be delayed. If they’re getting docetaxel with it, sometimes they can have it while they’re actually getting the treatment. I have seen mostly with the cisplatin patients come back a month later, and they have the numbness and tingling in their hands and feet.

DR LOVE: Now, once the four treatments are done, or the four cycles, does the neuropathy usually go away?

MS EABY: It usually does subside, but not in every patient. And I do tell patients that this can be a long-term side effect sometimes.

NAIL CHANGES

NCI: Nail Changes

DR LOVE: What about nail changes? Do you see that?

MS EABY: Nail changes, yes. So, as part of the docetaxel they can have nail changes as far as darkening under the nails or actually the nail coming off or nail growth over top of the current nail that they have on their body.

They can also have tearing with the docetaxel, and actually the cisplatin can cause that, too. And it’s just you’re not crying, but you have fibrosis in the tear ducts, which causes you to not allow the tears to stay in your eyes. They actually just drip out. So, it looks like you’re crying even though you’re not. Not too often, because we’re only giving four treatments, but it can happen.

DR LOVE: So, does that also tend to go away once the treatments stop?

MS EABY: It does. It almost always goes away when the treatment stops.

ALLEVIATION OF SIDE-EFFECTS

DR LOVE: Now, once the chemotherapy is stopped, how long does it take for patients to go back to feeling the way they were before they started? Or do they get back there?

MS EABY: They usually do. It's very rare that a patient never really fully regains. Sometimes, if there's a surgical complication on top of it, because a lot of the things that I find down the road, patients say, "I just can't breathe as well as I did before the surgery," and I don't know that chemotherapy adds to that, but they usually do. It does take, though, I tell patients, a good two to three months before they're going to feel really back to normal again.

CLINICAL TRIALS IN THE ADJUVANT SETTING

NSCLC Clinical Trails in the Adjuvant Setting

www.emergingmed.com

DR LOVE: What about the option of participating in a clinical trial? What kinds of trials are out there right now that patients who are going to get adjuvant therapy might be able to go into?

MS EABY: So, for our non-small cell lung cancer patients who've had surgery, we have a clinical trial now that looks at the chemotherapy drugs that we talked about and adding a drug called Avastin, or bevacizumab. And it's a randomized trial, so half of the patients get just the chemotherapy. They get randomized to just that arm. And the other half of the patients get randomized to receive the drug bevacizumab.

Link to this trial

DR LOVE: Now, what do you mean by "randomized"?

MS EABY: Meaning that their names are put into a computer. Actually, they're a number. They get assigned a number. And it gets put into a computer. And the computer naturally will randomize them. Half of the patients will go and not get the bevacizumab, and the other half will. And we do that so that we can determine that the treatment that we're giving, the study drug, that it's not just a chance that it's better, that we have a control arm to know that the treatment arm did do better.

HOW DOES BEVACIZUMAB WORK?

NCI — Angiogenesis Inhibitors Therapy

DR LOVE: Now, can you talk a little bit about what you say to patients in terms of why this study is being done, why bevacizumab, or Avastin, is being studied in this way?

MS EABY: So, it has shown a survival advantage in patients who have Stage IV disease. So, disease that we can see and follow. And because of the fact that it's improved actually survival and the time that it takes for them to progress, we think that possibly it could help improve cure rates in the adjuvant setting. And I can't say I necessarily would know why that would be, if it's some form of way of delivering the chemotherapy better or it's a drug that restricts blood flow to tumors, even though there's not, hopefully, a tumor there. But we're hoping that that will increase cure rates, as it's improved survival rates in our Stage IV patients.

DR LOVE: Now, in terms of a patient – let's say you see a patient who you think could possibly go into this study. What would you say to them in terms of the benefits of them actually participating?

MS EABY: I tell them that I can't tell them if there's a benefit, because I don't know the answer to that. I tell them that we have a hunch or we think that hopefully there will be a benefit, because it has shown a benefit in lung cancer before. But I tell them that I don't know the answer to that, but that the only way that we're able to advance any treatment in lung cancer is by patients participating on clinical trials and trying to enroll patients and find better treatments.

DR LOVE: I guess patients who go on this particular trial will get standard treatment, so half of them will get just standard treatment, which there's nothing wrong with. That's what they would get anyhow. And the other half get this experimental approach, where they receive the standard treatment plus the bevacizumab. And I guess there is the hope and the possibility that those patients actually might do better, or I guess they could do worse, too. Now, you mentioned that the chemotherapy is usually given for four courses. How about the bevacizumab?

MS EABY: So, if you are in that 50 percent of patients that get randomized to the bevacizumab arm, you will be required to come back once every three weeks to just receive that drug. And if you're randomized to the bevacizumab arm, that will go on every three weeks for a year.

SIDE EFFECTS ASSOCIATED WITH TARGETED THERAPY

Bevacizumab Side Effects

ACS: Cancer Drug Guide: Bevacizumab

- DR LOVE:** Now, once the chemotherapy is stopped and they're on this bevacizumab regimen without the chemo, how do patients usually feel?
- MS EABY:** Usually they feel better. The bevacizumab is a targeted treatment. It does not have many of the side effects that I talked about earlier with the chemotherapy. It does not lower blood counts, is not usually causing a lot of fatigue.
- DR LOVE:** I mean, it's actually the antibody.
- MS EABY:** Correct. Yeah. So, usually people feel pretty good when they're on it. There are some specific side effects to bevacizumab.
- DR LOVE:** Maybe you can go through those, because I guess the one point, though, being that, in general, I think patients, as you say, they feel fine. They're basically recovering from the chemo. But then there are potential specific complications where they may not feel bad, but they may have something develop that might require management. I guess the most common, or certainly one common issue, would be their blood pressure going up.
- MS EABY:** Correct. Yes. High blood pressure is one side effect of the bevacizumab, especially the longer that you're on it. And if we're giving it to someone every three weeks for a year, that certainly can become a complication, and has in the past become a complication, though, honestly, it's usually easily treated with antihypertensives. And we don't normally have a problem where we have to hold drug for that.
- DR LOVE:** What else is seen? I guess one is the possibility of protein coming out in the urine from the kidney.
- MS EABY:** Right. And we do check for that. It's not a common side effect, I will say, but it does happen at times. The treatment is to hold the drug. And it almost always normalizes, and then you're able to re-treat the patient.
- DR LOVE:** What about nosebleeds?
- MS EABY:** Nosebleeds can happen while on bevacizumab. It's usually where you blow your nose and there's some blood in the tissue. It's not common that you are just sitting, watching television, all of a sudden the blood starts gushing out of your nose. If that is happening, that requires some concern, and we would want to look into that further. But that is not technically a common thing, and we wouldn't stop treatment for a patient who's blowing the nose and having some blood in it. We really wouldn't stop for that. We would probably want to hold it if there was concern for nosebleeds that wouldn't stop.

PARTICIPATION IN A CLINICAL TRIAL

- DR LOVE:** I guess another thing would be what the patient's rights are. And they'd get a whole print, so-called informed consent, that I know is a lot of times kind of difficult to understand. It has a lot of different things in them. How do you advise patients in terms of going through that?
- MS EABY:** So, for this trial in particular, that consent form is quite long. I want to say it's probably 20 pages. So, we try to take patients through it as best we can. Much of it is side effects, which we go through anyway when we talk about it. We just try to navigate through it as best we can, but we don't sit there and read word for word, all 20 pages, with them.
- DR LOVE:** I guess another thing about being in the trial is the possibility, I guess, of contributing to the field and the care of future patients. As you talk to people, thinking this through, how much of an issue is that?
- MS EABY:** It's definitely something that I bring up, but I don't want to also pressure them into something they don't want to do, either. So, I do say that's the only way that we really advance our treatment in lung cancer, is by doing clinical trials with patients. And with this trial, like you said, you're going to get the standard of care either way. So, you're not not getting some kind of treatment. But it is giving back to people, and I think that does give some kind of patient satisfaction by hearing that you're giving back to the disease.

EGFR MUTATIONS AND TREATMENT INDICATIONS

- DR LOVE:** What other adjuvant trials are out there?
- Erlotinib in Patients with Resected, Early Stage NSCLC with Confirmed Mutations in the EGFR**
- MS EABY:** We have an adjuvant trial – two others that I can think of off the top of my head. One of them

is looking at patients who have an EGFR mutation. So, that would be a mutation in your cancer tumor that would bode well for you to respond to a certain drug. Now, again, we know that from the metastatic setting, patients who have Stage IV disease that we can see and follow. And if patients have this mutation, they often respond to a drug called erlotinib, which is a drug that's approved for Stage IV disease. So, taking that into the adjuvant setting, if you have a patient who had disease completely resected and it's gone and they have this EGFR mutation, then they may respond to this drug, erlotinib. And may not respond, but possibly improve their cure rate.

DR LOVE: And I guess the mutation is determined by actually studying the tumor.

MS EABY: Right, taking the tumor and actually extracting the DNA and looking for mutations in the DNA.

NEVER SMOKERS AND EGFR MUTATIONS

DR LOVE: About what fraction of patients have this mutation? And do you tend to see it in one type of patient more than the other?

MS EABY: Yes, it's most common in patients who've never smoked. And it's probably only about 50 percent in that population. In the total population, it's usually less than 10 percent. So, it's not something that we see often. We do often test for it in our patients. And it's only in adenocarcinoma patients. So, when you have a patient who's been resected, there's different cells types you can have. If you have adenocarcinoma, that would be the type that we would test for this. And if you're a non-smoker, you have an even more likelihood of having this mutation.

DR LOVE: So, now, in this study, if they do have the mutation, then they receive the drug, the erlotinib.

MS EABY: Correct.

DR LOVE: And the idea is to sort of see how people do.

MS EABY: Correct. So, now, if the patient has a stage where they are supposed to get chemotherapy first, because we know that's standard, they can get the chemotherapy first. And then they would go on to erlotinib if they have this mutation. And I believe it's two years.

PATIENT RECEPTION TO PARTICIPATION IN A CLINICAL TRIAL

DR LOVE: How do you find people in general responding to participating in a clinical trial?

MS EABY: We have a hard time. We have a much harder time in the adjuvant setting than we do in a metastatic setting. We often can get patients to go on clinical trials. In the adjuvant setting, it's been really difficult.

DR LOVE: I guess even though we never know whether a new approach is going to help, there's the hope that it will, the likelihood, I think, that it probably won't hurt, although sometimes that happens. So, it seems like if the traditional treatment, the standard treatment, isn't 100 percent curable, it would have some appeal just on the possibility maybe they could do a little bit better.

MS EABY: Yeah. I would tend to think that, also, but I find that patients who are eligible for these trials, I would say less than 50 percent of them will go onto the trial.

DR LOVE: I guess one thing it's important to clarify is the fact that it is totally up to them. And I guess, also, if they decide to go on the study and then at some point decide they want to stop, that really isn't a problem.

MS EABY: Right. We tell them at any time, they can go off of a trial if they're uncomfortable with it or if there's a problem with it. So, they do know that going into it.

PATIENT CARE AFTER TREATMENT COMPLETION

DR LOVE: Right. What about follow-up after adjuvant therapy is completed? What happens over the next few years, and what do you observe?

MS EABY: So, we normally will do CAT scans of the chest in follow-up. And we will bring the patient back, depending on what their stage and their risk for recurrence is, somewhere between every three to six months, to look at a scan. I know that it's very, very nerve-wracking to patients to be waiting for their scan result. It's very nerve-wracking. Some patients, we try to do it the same day, so they don't have to wait overnight to find out what the results are.

The problem with doing CAT scans is that it often finds things that are small and not able to biopsy and are oftentimes not cancer, but then cause a lot of concern. It frightens the patient, and then they

have to worry about it until their next scan, which isn't for another three months. So, that is the con side of getting a CAT scan.

DR LOVE: How do you respond if a patient says, "Well, instead of taking the adjuvant therapy, why don't we just wait and see if the cancer comes back, and then use treatment?"

MS EABY: I do hear that from time to time. And I right away tell them that usually once it's come back, it's not curable. So, at the time that you've had your disease removed and we're offering you adjuvant chemotherapy, there's a window of opportunity there where we can hopefully catch any disease that we don't see and try and improve your cure rate. Once we have disease that's come back that we can see on scans, it's often not curable.

COUNSELING PATIENTS ON THE RISKS ASSOCIATED WITH SMOKING

Smokefree.gov

DR LOVE: How do you deal with the issue of the patient who is smoking at the time of diagnosis?

MS EABY: Many times, if they've had surgery and they're still smoking after surgery, that's a problem, just because it can increase their recurrence rate, interfere with their healing from surgery. So, most times after patients have had surgery for it, they've quit smoking. For Stage IV patients, sometimes they are continuing to smoke. It's very, very difficult for them to stop, especially during an extremely stressful time. You and I probably would think that that would be a teachable moment for them and they would quit smoking at the time of diagnosis, but it doesn't always happen that way.

DR LOVE: What are some of the adjuncts to assist patients who want to quit or are having difficulty?

MS EABY: Yeah. We definitely offer smoking cessation therapies. From a medication standpoint, there is a drug called Chantix, or varenicline, I believe is the generic name. It's a fairly new drug and it seems to be in the clinical trials to be better than the standard antidepressants or patches or nicotine gum that we used in the past. So, we do offer that to patients as a first-line treatment to try and quit smoking. The idea is that you build up on the dose and you decrease your cigarettes until you get to that dose where you're supposed to have stopped. And I do find that it's been effective for a good number of patients. If they have a problem with that, we try other things, like Wellbutrin is a drug that's been used in the past. It's an antidepressant. Or nicotine gum and patches, those kinds of replacement therapies.

COPING WITH THE DIAGNOSIS OF LUNG CANCER

Coping with Cancer

DR LOVE: How do you find people coping with the diagnosis of lung cancer, and also coping after the adjuvant therapy is over, with the potential of it coming back?

MS EABY: Patients cope very differently. Some patients feel like once they stop the adjuvant therapy, "Well, what do I do now? I'm left, and I'm not doing anything." So, for those patients, you just have to tell them that at this point we're going to rescan you and, if something comes back, hopefully we can find it sooner, rather than later. There are support groups available to them, if that helps them deal with it, but there is a lot of anxiety over the CAT scans and the reports.

Then there's the other side of patients, who didn't want adjuvant therapy to begin with for whatever reason, and they feel like it was gotten, they got it all. And a lot of times they come back for their scans, but they maybe are in some kind of denial or thinking, "You know, this won't come back, and I'm just going to think about it that way, that this won't come back." They tend to have less anxiety that they show in our office, anyway, over the reports.

DR LOVE: What are the things that you've observed? I mean, everybody's different, but some of the different kinds of things that you find help people cope with anxieties and stresses about this.

MS EABY: Oftentimes we will refer them to our counselors or our psychiatrist or a support group. We have not been successful at having our own support group just at our university setting. Patients haven't come to it, basically. But places like the **Wellness Community** or the **American Cancer Society** or online.

Educational Assessment and Credit Form

Patient Perspectives on Adjuvant Systemic Therapy of Non-Small Cell Lung Cancer

Research To Practice is committed to providing valuable continuing education for oncology clinicians, and your input is critical to helping us achieve this important goal. Please take the time to assess the activity you just completed, with the assurance that your answers and suggestions are strictly confidential.

PART ONE — Please tell us about your experience with this educational activity

How would you characterize your level of knowledge on the following topics?

4 = Excellent 3 = Good 2 = Adequate 1 = Suboptimal

	BEFORE	AFTER
Quantitative effect of adjuvant systemic therapy on NSCLC recurrence rates	4 3 2 1	4 3 2 1
Supportive management of side effects associated with docetaxel/platinum doublets	4 3 2 1	4 3 2 1
Risks and benefits of anti-angiogenic agents in the treatment of NSCLC	4 3 2 1	4 3 2 1
Clinical trials evaluating biologic agents for the treatment of NSCLC in the metastatic and adjuvant settings	4 3 2 1	4 3 2 1

Was the activity evidence based, fair, balanced and free from commercial bias?

Yes No

If no, please explain:

Will this activity help you improve patient care?

Yes No Not applicable

If no, please explain:

Please respond to the following learning objectives (LOs) by circling the appropriate selection:

4 = Yes 3 = Will consider 2 = No 1 = Already doing N/M = LO not met N/A = Not applicable

As a result of this activity, I will be able to:

- Utilize key clinical and pathologic prognostic factors when recommending local and systemic treatment options to patients with NSCLC.....4 3 2 1 N/M N/A
- Effectively communicate the individualized risk of cancer recurrence to patients with surgically resected NSCLC.....4 3 2 1 N/M N/A
- Develop an evidence-based algorithm for the initial treatment of localized NSCLC, exploring the role of neoadjuvant and adjuvant systemic therapy4 3 2 1 N/M N/A
- Appreciate diverse patient perspectives concerning lung cancer diagnosis and treatment, and use this insight to deliver high-quality empathetic care ...4 3 2 1 N/M N/A
- Recognize signs and symptoms of chemotherapy-induced side effects, and offer supportive management strategies to address them4 3 2 1 N/M N/A
- Educate patients eligible for adjuvant chemotherapy about the benefits and risks of commonly used chemotherapeutic regimens, and explain how systemic lung cancer treatment may affect quality of life.....4 3 2 1 N/M N/A
- Recall the scientific rationale for investigation of novel agents and strategies in NSCLC, and counsel appropriately selected patients about availability and participation in ongoing clinical trials.....4 3 2 1 N/M N/A

PART TWO — Please tell us about the faculty and editor for this educational activity

4 = Excellent 3 = Good 2 = Adequate 1 = Suboptimal

Faculty	Knowledge of subject matter	Effectiveness as an educator
Heather Wakelee, MD	4 3 2 1	4 3 2 1
Joan H Schiller, MD	4 3 2 1	4 3 2 1
Beth Eaby, MSN, CRNP, OCN	4 3 2 1	4 3 2 1
Editor	Knowledge of subject matter	Effectiveness as an educator
Neil Love, MD	4 3 2 1	4 3 2 1

Did the activity meet your educational needs and expectations?

Yes No

If no, please explain:

What other practice changes will you make or consider making as a result of this activity?

What additional information or training do you need on the activity topics or other oncology-related topics?

Additional comments about this activity:

As part of our ongoing, continuous quality-improvement effort, we conduct postactivity follow-up surveys to assess the impact of our educational interventions on professional practice.

Please indicate your willingness to participate in such a survey.

Yes, I am willing to participate in a follow-up survey.
 No, I am not willing to participate in a follow-up survey.

Please recommend additional faculty for future activities:

Other comments about the faculty and editor for this activity:

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