



Y-ME National
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**Y-ME ShareRing Network
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"Cancer Fatigue and Chemo-Brain"**

Arline Kallick: Tonight's speaker is Dr. John Glaspy. Dr. Glaspy is a professor, researcher and director at UCLA Oncology/Hematology. Welcome, Dr. Glaspy.

Dr. John Glaspy: Thank you. It's a pleasure to have a chance to spend a few minutes and talk about this topic. I am going to start with fatigue because I think the flow of how we have come to understand this field starts best there.

Until the mid 1990's, just over 10 years ago, fatigue was not on anyone's radar screen in terms of people working on the cancer problem and it was not recognized that fatigue was a common problem among cancer patients. It was thought that pain was the dominant driver of quality of life. The identification of fatigue as the most frequent severe symptom in people undergoing cancer treatment in the United States occurred in 1997. It was a rude awakening for us because we found that we had not been working at all on the problem that most drove quality of life for cancer patients. A lot of work has been done since then and only a little bit of progress has been made. So maybe we should review that first.

First of all, because at the same time that fatigue was identified as a problem, anemia treatment to treat mild and moderate degrees of anemia was also becoming common in oncology practice. The first piece of this puzzle turned out to be the anemia that we were willing to tolerate in cancer patients and had been willing to tolerate for decades. We were willing to tolerate it for two reasons.

One, transfusions have risks and we didn't want to transfuse levels of anemia that were not life threatening. Secondly, we had been trained that it was asymptomatic; that patients did not have symptoms when they had mild and moderate amounts of anemia.

It became very clear very quickly when we had these new drugs to treat the anemia of cancer that didn't have the risks of transfusions; that patients' fatigue improved when they were treated for their anemia. That proved to us that it had been symptomatic all along even though we didn't realize it.

If you look real carefully at the huge amount of data that is available out there it is fairly well documented that fatigue is caused by these levels of anemia and that there is a lot of fatigue out there even in patients who are not anemic. Around 20% of the variations in fatigue that cancer patients have are explainable by variations in their hemoglobin or by anemia.

So we have a small part of the puzzle solved and treatment of anemia has become a touchstone to the fatigue movement in oncology, if you will, because it's one thing we understand and it makes a significant fraction of the fatigue better but it leave us with a huge problem. We have 80% of the fatigue that our patients experience completely independent of their anemia and we don't have any real good treatments for this. We don't understand fully what causes it.

The field has advanced a great deal in the sense that we now know that there are cytokines, compounds that the body makes in response to cancer or to being sick that drive a fraction of this fatigue. We know that depression and sleep deprivation drive a portion of the fatigue. We know that if you successfully treat

the cancer this fatigue will improve. It takes a long time -- we know that -- but it does improve. So successfully treated cancer patients who can get away from their treatment and get away from their cancer and recover have improvements in their fatigue level that go on sometimes for a year or more before they are completely resolved but the fatigue improves.

How do we make fatigue better for patients who can't get away from their cancer, have to live with it, and have to live on cancer treatment? That has been a much tougher problem to solve. There is work going on exploring the ability of cytokine blockers. You will see TV commercials now for medicines that are aimed at arthritis. Those are a new class of medicines that work by blocking the effects of these chemicals that the body makes in response to inflammation and makes rheumatoid arthritis and other rheumatologic disorders better. Because the cytokines that the rheumatologists are fighting are the same cytokines that we believe cause a fair amount of the fatigue in our patients, there is an interest in developing those drugs as fatigue drugs in cancer and there are some clinical trials ongoing looking at that.

In addition, there are some less expensive and less complicated endeavors to treat patients. The anti-inflammatory TV commercial drugs have as one of their potential side effects an increase in infection risk. So everyone is a little worried about what this will do if it becomes something that gets used in cancer what it will do to infection risk. You will notice one of the TV commercials says if you have ever had tuberculosis make sure you tell your doctor. That's because these drugs block to some extent the body's ability to fight infections.

The other concern is that blocking the immune system can block your body's ability to fight the cancer itself. So the effects on infection risk and on tumor progression are effects that are going need to be watched carefully and these drugs are not ready for prime time as cancer fatigue treatments.

The simpler treatments are relatives of the drug Ritalin. There is now a randomized trial that says if fatigue gets better with one particular relative of Ritalin and that drug is out there and available it can be prescribed and makes fatigue better in some patients.

Now let's leave that fatigue story for a minute and develop the other line of tonight's talk and that has to do with cognitive impairment. Around the same time that fatigue was being discovered in oncology some reports came out of Canada that stated that women who were receiving adjuvant chemotherapy for breast cancer -- chemotherapy to prevent reoccurrence of the breast cancer -- had measurable cognitive impairment. These tests were relatively sophisticated tests of executive function in the brain and they were done by comparing women to controls -- sometimes a friend of the patient of a similar age who was not receiving chemotherapy. There was more cognitive impairment noted in the women who were receiving chemotherapy. This resonated with the patients the same as the discovery of fatigue did. When we finally got it and said fatigue is important to the cancer patients the cancer patients in the country did the wave. They said that's what we have been trying to tell you! It's a problem and it's a big problem.

The same thing happened with this and very rapidly this cognitive impairment that had been discovered and researched in Canada became a very frequent

watchword among the cancer patients -- the word chemobrain became their word for it and that's what most of you probably know it as.

So chemobrain was identified among breast cancer patients receiving adjuvant chemotherapy and the patients said we feel this. We have had cognitive impairment since we started taking our chemotherapy and thank goodness you guys have finally figured this out. You don't need a sophisticated test. I can't find my car keys and I keep forgetting birthdays and other symptoms that they would describe.

Now that field has gotten very interesting very quickly. First of all a very important study was presented last year at the cancer meetings. It was a study done in Chicago at Northwestern. In that study they, for the first time, followed women through the breast cancer treatment process. So they said rather than take them when they are on chemotherapy and compare them to some control let's take them before they receive the chemotherapy and repeatedly test them and find out when there is a drop in cognitive function on these tests that discovered the problem to begin with. To everyone's surprise this drop in cognitive function, at least in this one study of women receiving adjuvant chemotherapy for breast cancer, the drop occurred before they received the chemotherapy. It occurred after the surgery and before the chemotherapy. So that has thrown everyone into a quandary because the assumption had been that chemotherapy is the driver, that chemotherapy is causing brain damage. And people have been trying to figure out ways to block the effects of chemotherapy on the brain.

But this study makes us pause and wonder whether that is really the mechanism. There is no question that the observation is a true one and that the symptom is there -- it's valid. The question is what's the cause? They found in their study that the women who developed mild anemia following the surgery were the ones that had measurable cognitive impairment. So one question has been are these two fields coming together? Is part of the cognitive dysfunction anemia just like part of the fatigue was anemia and maybe fatigue and cognitive impairment are two ways of expressing the same constellation of symptoms? Obviously if you are tired, if you are not sleeping, if you are depressed, your cognitive impairment will go down. If your cognitive impairment function is lowered that might contribute to fatigue. So is this really two people touching the same elephant and just describing a little different part of this whole cytokine syndrome?

So now when we talk about doing studies of the effects of anemia treatment or the new anti-inflammatories or the Ritalin-like drugs on patients with fatigue we also look at cognitive impairment. At that same meeting of ASCO there was a presentation of a new study of an established drug -- a Ritalin analogue -- that looked at both cognitive impairment and fatigue and saw improvement in both when patients with cancer-related fatigue were treated with their drug. So this is likely to be the most fertile avenue for traditional research in this area.

Now there is some additional news that is pretty good. More data has come in now on follow-up of people who receive chemotherapy and suffer fatigue and cognitive impairment. In those studies people have looked for whether it gets better or not. Is this is permanent or a temporary problem for people? The data are all saying that if you can get rid of your cancer and if you can get off your cancer treatment your fatigue and your cognitive impairment will improve with

time. The cognitive improvement is always faster than the fatigue improvement but the chances of improvement if you get away from the cancer treatment is very good. So it doesn't appear that this is very often a permanent thing. Now I will qualify that. These studies are being done on people who get standard dose type chemotherapy treatments and we don't know whether this improvement is as widespread in patients who are treated with high dose chemotherapy and bone marrow transplant or with whole brain radiation for problems as adults. Those are less clear that people improve. But the improvement in the patients who have more standard doses of treatment has been very consistent. It's relatively reassuring for those of us who were worried that this might become a permanent problem.

So I will stop there I guess. This leaves around 20 minutes for questions..

Our first question comes from Diane from California. Please go ahead.

Diane:

Yes, Dr. Glaspy, I was wondering if there has been any research done on the effective continued aromatase inhibitors on mental function? After the chemo but continuing your five years, if that's supposed to have an effect also.

Dr. John Glaspy:

That's a very good question and it raises something...I had a little note to myself to mention that. I forgot to mention it so my chemobrain is kicking in. One of the real problems with this whole field of cognitive impairment with chemotherapy has been that the choice to look at adjuvant breast cancer as the place to look for chemo effects on the brain was in retrospect not a good choice. The reason is

that it is also very common for a significant fraction of women in receiving chemotherapy like that to prevent recurrence of breast cancer to be going through menopause at the same time they are going through their chemotherapy. And going through menopause is associated with sleep disturbances. Sometimes women know it and sometimes they don't. But there are sleep studies that show that menopausal women have not infrequently disturbed sleep even if they don't know they are sleep disturbed.

So you may not wake up but it changes the amount of good, restful, high quality sleep as you go to near waking up with say hot flashes. Anybody who has been to college knows that if you pull an all-nighter or only sleep for a few hours every night your cognitive function will be impaired the next day in just about exactly the same way that patients are reporting to be chemobrain and the investigators are reporting with these treatments with chemotherapy and with these more sophisticated cognitive function tests.

So everybody looked at this data initially and said well all you have discovered is that a woman, compared to her next door neighbor of the same age who received chemotherapy in midlife, is more likely to go through menopause and go through it abruptly. If they go through it abruptly they are more likely to have sleep disturbance and if they have more sleep disturbance of course you are going to measure this. So you could have predicted your results ahead of time.

Diane: **So you can't blame it on the medicine?**

Dr. John Glaspy: Right. It's not clear...well you can but it's the medicine affecting the ovaries not directly affecting the brain. So they may have discovered that and your question

would be when am I off treatment? If I get chemobrain and you tell me I am going to recover when I come off treatment do you mean when I finish my five years of hormonal therapy? Or when I stop my chemo? Probably the answer is yes. That probably part of this is chemotherapy induced effects, maybe not directly on the brain but on cytokines, that do get better when you are off the chemotherapy.

To some extent and to a large extent in some of the women it's a hormone deprivation adjustment that they are going through and that will get better over those five years but not because we haven't stopped doing to you what is causing your problem but because after awhile your sleep returns to a more normal state and your hot flashes diminish as your body adjusts over a period of years to lower estrogen levels.

So I think you will note if we did this...I don't think anybody has done it but if we did it I would be shocked if it didn't show that cognitive impairment and fatigue get better in the women who have hormone negative tumors and don't go onto hormonal treatment faster than they do in the women who do on to hormonal treatment.

Diane: Okay, thank you. That was very helpful.

Operator: *Our next question comes from Ursula from Connecticut. Please go ahead.*

Ursula: **Hi doctor. I appreciate what you said about cognitive impairment and I would also like to comment that unless a patient is involved with**

chemotherapy I personally don't think that the word chemobrain is appropriate.

But what I would like to say is that I am eight years past chemotherapy, I am cancer-free, and I am a published author and researcher and I am severely, cognitively impaired because of whatever treatment I received. I tried to Ritalin, which worked for about six months and then stopped completely.

I have in my possession several articles from medical journals, which actually give a percentage of 25% to 30% of permanent cognitive impairment in postmenopausal women who have received adjuvant chemotherapy. Unfortunately, I am one of them. Neuropsychological testing confirmed the cognitive impairment and I would like you to address the fact that this of course was not told to me before I started chemotherapy and I don't know a single woman who was informed by her oncologist that there was a very high percentage of a chance that she should be permanently cognitively impaired.

Dr. John Glaspy: I think you have addressed it as well as it can be addressed. I don't have too much to add. You cannot deny that you have this symptom and you have these objective findings.

Ursula: **But why isn't this communicated to patients before the chemotherapy?**

Dr. John Glaspy: I think because there isn't a uniform agreement in the field that the literature is consistent with the percentages that you quote.

Ursula: **Yes, but I have several articles that...**

Dr. John Glaspy: But again it's not just that you have several articles. It has to do with a preponderance of the published literature where in careful clinical trials and a negative one counts just as much as a positive one so the doctor's respond to the aggregate of the literature and inform patients based on that not just the fraction of the literature that you are quoting. I think that that's why you haven't seen this become something that is standard to talk about as part of...

Ursula: **Well, in my case the problem was also that my oncologist just pretended she never heard of it, she never observed it, and I was deprived of remedial therapy for seven years. I am now getting cognitive rehabilitation and I feel if my oncologist has been more up front with me there would have been an opportunity for me to start cognitive rehabilitation sooner and maybe with some success.**

Dr. John Glaspy: All right. There is not much more we can say I don't think. I think you have made your point very clearly.

Ursula: Thank you.

Dr. John Glaspy: Okay.

Operator: *Our next question comes from Angel from Illinois. Please go ahead.*

Angel: **Hi. Part of my question was answered but I was just wondering if there was any research on how long these conditions last after treatment?**

Dr. John Glaspy: Yes, as you just heard there is a tremendous variation among the patients who are really the ultimate arbiters of this, right? They are the ones...we have proved over the years that if a doctor says a symptom doesn't exist that doesn't mean it doesn't exist. That really the patients are the place to go if you want to find out.

Some people like the last caller report this sort of permanent change in their cognition whereas others report getting better as soon as the chemotherapy finishes. All literature can do is take a large group of people and tell you averages, which don't tell you what's going to happen to you. That's the problem with averages. They don't tell you anything about you.

Angel: **Okay, because see I haven't reached the menopausal state yet and I am still experiencing the chemobrain (inaudible).**

Dr. John Glaspy: And again it is not surprising that if you go on a conference call and say people have an interest in this. Call in and we'll talk. You are going to attract the people who have a problem especially those that have a problem that didn't go away looking to see if I have any answer and I don't. Beyond that dexmethylphenidate data that I talked about we really don't have a success story to tell you about how to make this better. There aren't real good studies on how to make it better. The averages are that it gets better within two years but that's average and a lot of people are not average. In fact, no one is really average. They are either better than average or worse than average.

- Angel: **Right, because I am two years out of having chemo and I am still experiencing (inaudible)...**
- Dr. John Glaspy: That's not surprising at all. I wish I had a list of 10 things to try for you. There is more to talk about with fatigue. There is now good published evidence that exercise -- formal sorts of forced exercise -- is better than just anemia treatment for fatigue while you are getting chemotherapy. But we don't have an exercise cognitive function link. We have this dexmethylphenidate trial that was a very important trial but that's not enough because a lot of patients come back and say tried it, didn't work, waited your two years, still have problems, what should I do? And we don't have something off the shelf that we can say if you do this you will do better.
- Angel: **Well, I have noted that I have been exercising more and that has helped me with the fatigue but not with the cognitive impairment.**
- Dr. John Glaspy: Well, you are average at least, in one regard, then and that is your response to exercise was average. That's what happened on average.
- Angel: Okay, thank you.
- Operator: *The next question comes from Claire from Nevada. Please go ahead.*
- Claire: **Hi Dr. Glaspy. I really appreciate you giving this lecture. I am a high-dose girl and I am 10 years out and I still have the cognitive and the fatigue. I take Ritalin, which does help but it doesn't have a long lifespan. Or it**

doesn't last very long -- each pill. I was wondering...you say Ritalin analogue so is that a different drug than Ritalin?

Dr. John Glaspy: It is.

Claire: **Can you spell it?**

Dr. John Glaspy: Yes, I can. Let me make sure I get it right. It's d-e-x-m-e-t-h-y-l-p-h-e-n-i-d-a-t-e. And that's the drug that has been actually studied. Ritalin hasn't, believe it or not, for this problem. People gravitate to Ritalin but it was the dexamethylphenidate that was showing the randomized trials to have some benefit.

Claire: **Okay. Well, I can tell for myself when I was diagnosed at the University of Pennsylvania with it and I have had it for 10 years and Ritalin does help but I am trying this other stuff because I would like it to last like all day rather than just a couple of hours.**

Dr. John Glaspy: I take care of several hundred women who have high dose therapy and I can tell you it hasn't been formally studied but it is my experience that this is more common -- this permanency thing is more common following high dose therapy and particularly high dose therapies that included high doses of chemotherapy drugs that penetrate the brain.

Claire: **Does that mean...because I also had a bone marrow transplant that that's what it means?**

Dr. John Glaspy: Yes, that's what high-dose chemotherapy would be with but I don't know which chemotherapy drugs you got so for (inaudible) if I can tell you if one of them was one of the ones that gets in the brain. But at this point we can't...

Claire: **It probably is because I had a lot of (inaudible) issues also and I was out of scripts. But that's okay; I think I am going to come see you so that will be good. I sure appreciate it and thank you so much.**

Operator: *Our next question comes from Joyce from New York. Please go ahead.*

Joyce: **Hi. Thank you so much. I have two questions. The drug that you said ...that you just spelled...I am not even going to pronounce it. Does that have side effects in the clinical trial that fights...fatigue is my problem now.**

Dr. John Glaspy: Yes, it has the same side effect profile as all these activating drugs.

Joyce: **Which would be?**

Dr. John Glaspy: It's a little bit like drinking too much coffee. They have that same effect on people so it can make you feel jittery.

Joyce: **And then you couldn't sleep at night? And then it might (inaudible)...**

Dr. John Glaspy: Well, if that happened you would go off the drug because obviously that is counterproductive.

Joyce: **But that would be the only side effect?**

Dr. John Glaspy: No, the feeling of nervousness. It can cause sleep disturbance, it could cause palpitations of the heart but so does coffee. All these drugs have to be taken carefully by anyone who has a history of heart problems just like anything that can make your heart go faster.

Joyce: **Right now I have breast cancer that went to the liver so my oncologist says it is going to be ongoing and I don't see any stoppage in the chemo so I am very, very fatigued which of course again he denies it. He gives 100 different excuses. But my question is is there anything I can do that would be either natural or herbal that you believe in that might give me more energy other than this pill? Is there a natural method that might work?**

Dr. John Glaspy: There are two things I can think of. One is natural; one isn't. But I will give you some insight into doctors and how we think and how we are put together. We tend to not want to talk about things we can't do anything about anyway, right? So it may not be that he is denying the existence, or she is denying the existence of your symptoms. It's that we really are embarrassingly poor in our ability to do something about this. I disclosed that to you right up front. We figured out 20% of the problem and we are flailing at the rest of it.

Joyce: **Well, at least it is recognized now. I know from my reading it was not in my reading at all.**

Dr. John Glaspy: It's a huge problem, we know it's a huge problem, we just don't know anything we can do about it. There are two things that I think would make sense if you are

receiving chemotherapy and having severe fatigue. The first would be to make sure that your anemia is being treated.

Joyce: **He said I wasn't really anemic.**

Dr. John Glaspy: Well, I told you there are lots of people...but make sure. By anemic we wouldn't mean that you have severe anemia. We would mean that even if you have a moderate amount of anemia that that has been addressed because that's something we can do something about. It might only be 20% of the puzzle but that doesn't mean we should ignore it because it's the only piece of the puzzle we actually have a handle on.

Joyce: **My white cells went down and they were going to give me that injection but then they went right up again. Does that have to do with fatigue also? The white cells?**

Dr. John Glaspy: We don't know real well about that. There is some data that it might even though medicine teaches us it doesn't. But the anemia -- don't let that fall through the cracks.

Joyce: **Okay, so that's one possible thing?**

Dr. John Glaspy: That's number one. And I think getting your hemoglobin up into the range close to 12 is part of this puzzle. Then we have the natural part of this and this may or may not be easy for you but exercise.

Joyce: **Well, I was looking into that now.**

Dr. John Glaspy: It's going to be tough because it's not fun when you're well for a lot of people and it's really hard when you are already fatigued.

Joyce: **I do a lot of walking. Do you mean more kind of aerobics?**

Dr. John Glaspy: You start with walking and if you can walk half a mile you walk that half a mile and then you give yourself a little tough love and push yourself another couple hundred yards.

Joyce: **On my good days I can do the walking but do you think that's enough? Or what other kinds...**

Dr. John Glaspy: I think you do the best you can and you try and do a little bit better every day.

Joyce: **Like aerobics? I mean what kind of (inaudible)...**

Dr. John Glaspy: I think aerobic exercise...walking is fine. Swimming is fine. But you try not to lose exercise capacity over time and that's really hard if you have a tumor that's growing.

Joyce: **Well, I have the swelling from the liver, which makes it harder to walk and to anything.**

Dr. John Glaspy: Right. Or you are getting more and more chemotherapy because there is something stacking worse for you every time and your lifetime dose of chemotherapy is going up so sometimes striving to hold your own and not letting

the exercise capacity get worse is the best you can do and it's a tremendous victory for you.

You won't feel the fatigue improvement for the first couple of weeks. For the first couple of weeks you will just hate whoever is telling you to get out there and do your walking or do your swimming or stand on the treadmill, whatever it is you feel you can do to get some physical exercise. That has been shown in trials to do better than just fixing the anemia, which isn't surprising. But it's not easy. It's not like go down to the health food store, buy some wheat germ and you will get better. It's natural but it's tough love natural. It's hard on you.

Joyce: **Would you say that three times a week or something like that?**

Dr. John Glaspy: I think what you can get yourself to do -- being active every day and exercising formally three times a week would be fine. But there's nothing wrong with taking a walk in the evening around the block even on the non-exercise days.

Joyce: **I walk every day a lot but I push myself with that. Is there anything...you didn't mention the food part of the natural food -- just obliquely the wheat germ. Do you believe that there is anything that could affect the energy level in the natural...?**

Dr. John Glaspy: I believe that there is so much of that natural stuff out there that there actually might be two or three of them that work. I just don't know which ones they are because the ability to get data to tell us this is pretty small. There is not a lot of good data to say these six things don't work but this one actually has something to do.

That's where actually things like this Y-ME and other groups that bring patients with breast cancer together is a good resource for you because sometimes the discoveries happen at that level long before they rise or fall depending on how you look at it, to the level of doing clinical trials and doctors. So any hints you can get from people you meet in these support environments and sharing environments is very valuable. I put a lot of stock in it. If someone who had breast cancer or any kind of cancer metastasized to the liver who had fatigue and said I tried these three things and it didn't work and I tried this particular thing and it did work that's where I would start. That's the thing I would try.

Joyce: **I do that. I have support groups and I have people I see in the doctor's office but we haven't come up with anything yet. But I do keep inquiring, which I guess is the best way.**

Dr. John Glaspy: Good luck.

Joyce: Okay, thanks so much. I appreciate it. Bye-bye.

Arline Kallick: We will take our last question now.

Operator: Our last question comes from Paula from Illinois. Please go ahead.

Paula: **First of all I want to say thank you very much for a very informative sharing of information. Number one I dislike the term chemobrain. I think if we do call it Chemo Cognitive Disorder Syndrome we might get more respect. The second thing is I am a dense dose chemotherapy therapy with Phase**

IV breast cancer and I do agree that this is a long-term problem that affects those of us. I want to know if there is any use of anything like selenium or melatonin that will impact our sleep patterns and help in assisting this process?

Dr. John Glaspy: There is a dearth of data for melatonin or selenium. Either I am not aware of it or the data isn't out there to tell if this works. So it would be sort of an experiment for yourself type deal there. There has been one study that suggested that sleep gets better with antidepressant treatments in this setting. But that's something a lot of people don't want to do because of the side effects of the antidepressants.

Paula: **I've been taking both of them and I think I have noticed an increase in my sleep patterns being more stable.**

Dr. John Glaspy: Good.

Paula: **I have also taken...I mean this is with my oncologist's blessing. Anything I do is through them and with their full knowledge because I think we have to work as a team on this.**

Dr. John Glaspy: I agree with that and I don't like the name chemobrain either. That one actually comes from the patients. That's the patients who ended up calling it that and the name was so powerful it stuck.

Paula: **Unfortunately, yes.**

Dr. John Glaspy: I don't like it because it's misleading. It may be that this is a real syndrome that happens in patients who receive chemotherapy but it's not caused by the chemotherapy affecting the brain. The way to set a field back a couple of years in terms of solving a problem is to have a misleading name that forces people to make assumptions that aren't true.

Paula: **My oncologist was very forthcoming with all the different symptoms including...well, first of all I have tooth problems with nerve problems. Part of my mouth is numb so pronunciation is a real issue with me right now. That's another complement of chemotherapy but they were very forthcoming with the possibility of complications with cognitive functioning because I was in the process of finishing a dissertation and they told me you better put this on hold because we don't want you working on this until you are comfortable. So I learned I have to come up with a new normal for me now. My old normal is no longer probably a good goal for me so I am looking for a new normal me until I kind of come out the woods on this one.**

Is there anything at all that we can do to aid in this process of recovery?

Dr. John Glaspy: I have sort of shot my bolt in terms of what I know can be done to help you.

Paula: **The reason that I am asking is I just saw an advertisement on TV about this new game that is supposed to help with cognitive function. It's like a Game Boy that's supposed to have different games on it that's supposed to help with processing.**

Dr. John Glaspy: This is for the Alzheimer's people? Is that what it's being developed for?

Paula: **Yes.**

Dr. John Glaspy: Again, it would be very logical to try it and it would be something for people to study and publish if it's effective because it would be something that can be done.

Paula: **Are there any new studies being done currently?**

Dr. John Glaspy: There are lots of studies being done and I tried to sort of (inaudible) where they are going. There is a lot of cytokine blocker work going on. There are four or five more clinical trials coming regarding exercise. There is not a lot going on with the alternative treatments in an organized study fashion right now. There is some more data coming with brain activators; drugs other than dexmethylphenidate.

Paula: **I am deficiently going to mention that to my doctor and we'll take a look at the research on that.**

Dr. John Glaspy: There is a trial out there that was presented at ASCO last year.

Paula: **Is it from Northwestern?**

Dr. John Glaspy: Yes...was it a trial through Northwestern? No, I think that's the one about the problem happening earlier than the chemotherapy in women. That was a Chicago study. That was from Northwestern.

- Paula: **Okay, because I had just seen a pamphlet on it.**
- Dr. John Glaspy: The dexmethylphenidate study was multi-institutional.
- Paula: **My oncologist advocates a lot of exercise and he also advocated not only the physical aerobic type but also the yoga, the mental balance. I have been doing both of those and I have noticed an improvement long-term; it doesn't come overnight.**
- Dr. John Glaspy: Yes, it's hard work. The first author on the dexmethylphenidate study is Lower, L-o-w-e-r.
- Paula: Okay. I appreciate that and I look forward to hearing more from you. Thank you.
- Arline Kallick: I would like to take this opportunity before we break into small groups to thank Dr. Glaspy. It was a wonderful program; very informative. You spoke very clearly and answered a lot of very good questions as usual. Thank you so much Dr. Glaspy.
- Dr. John Glaspy: Thanks for having me.
- Arline Kallick: Thank you again and good evening.