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United Spinal

"Know Your Options for Treating Severe Spasticity"

>>CART Captioner: Standing by.

>> The webinar will begin shortly. Please remain on the line.

>> Male Speaker: Good afternoon. Thanks for joining the United Spinal's webinar, "Know Your Options for Treating Severe Spasticity"with Dr. Bilsky.

I will be the moderator for today's presentation. Today's webinar is a one of a series that United Spinal association with be hosting, and all webinars are archived at www.unitedspinal.org. We will have time for questions from the audience. Use the question window on the control panel to write in any questions that you have. And then we'll do our best to get to them today. If do you run out of time, we follow up with your questions via e-mail. And anyone using closed captioning,

the direction for the use of closed captioning are available there.

Dr. Bilsky is associate medical director for acquired brain injury program at the Sheperd Center, a hospital based in Atlanta, Georgia, that specializes in medical treatment, research, and rehabilitation for people with spinal cord injury, brain injury, and significant neuro deserve discern in the field of medicine and rehabilitation. He has served on numerous boards of directors. He currently serves as cochair of the Sheperd Center ethics committee.

He graduated from the University of Rochester, school of medicine. He is board certified in medicine and rehabilitation, and been in practice for more than 30 years. And now I would like to hand the presentation to Dr. Bilsky for his presentation on severe spasticity treatment. Dr. Bilsky?

>> Dr. Bilsky: Thank you, Bill. It is a pleasure to be talking with you all today.

Our goal is to discuss spasticity. It's a diverse topic but one I thoroughly enjoy talking about. I hope to give you my impression, thoughts, about spasticity and its treatment. However, there will be a fair number of general it's throughout the presentation. The audience is quite diverse ask not all comments will be directed to everybody. So you may have to address specific questions with your own treating

physicians.

Today's agenda as rehab specialist I focus on goals. So our goals today are to talk about spasticity in and of itself. To feature some of the symptoms of spasticity, and to spend some time discussing current spasticity treatment options.

I hope you all gain a better understanding of spasticity in and of itself as well as appreciate some of my perspectives and how I as a treating clinician approach patients with spasticity.

What could do you if your spasticity was controlled?

Controlled is a difficult word. It means different things to different patients. For some, yes, totally controlling spasticity is a goal that may or may not be achievable. But for some, just being able to modulate spasticity and to improve one's function is really the goal for a lot of patients. For some, spasticity may be very helpful and in those patients interfering with the function provided by spasticity even though it is sounding a bit oxymoronic, may be detrimental to a patient's overall status. What I like to talk about, somewhat un-ashamedly is what I call Bilsky's rules. Amongst all of these we have to think function. So going through spasticity is spasticity interfering with function?

Is it interfering with bathing and dressing, sitting in a wheelchair, or

ambulation? Those are some of the things we might want to consider. One of the big things that patients often have to appreciate is whether spasticity is interfering with sleep and it's their own sleep or someone next to them. A lot of patients may sleep through their own spasticity, but their partner may not be able to.

What is spasticity?

Above all, spasticity is hallmarked by stiff muscles that make movement difficult, whether spasticity of spinal origin or cerebral origin, the final common pathway is the muscle itself. The spinal cord sends out signals that helps modulate muscle activity. For this presentation, we'll really focus on spasticity of spinal origin.

Inherently, the way I explain it to patients is muscles truly want to move. Muscles are designed to move. There are signals that come out of nerves within the spinal cord that help modulate that movement. So it helps tell the muscles it's not time to move as much as they are. When there's an injury or insult to the spinal cord, some of those signals that are telling muscles to relax do not make it to the muscles and therefore they tend to be hyperactive.

The basic signs and symptoms of spasticity are as follows.

Increased muscle tone. What do we mean by that?

The true definition is resistance to passive stretch.

So if you are trying to stretch your muscles -- or a physical therapist, or a family member, or your physician -- and when you move that muscle, the muscle reacts with a stiff response that is a sign of increased muscle tone.

Over active reflexes imply when your healthcare provider is, for instance, tapping your knee, we all have that knee-jerk reaction, but for some people it becomes much more pronounced.

And then there are the involuntary movements that can typically be one of two things. The intermittent spasms where muscles will jerk on their own or not consistently or constantly. Those involuntary muscle spasms can occur at any time. Sometimes with a stimulus and sometimes not.

Other people get what's called clonus. Whereas when you stretch the muscle, it tends to for a period of time just keep contracting. The typical feature is the ankle where the foot may continue to bounce

once it is stretched. These are some of the more common signs of spasticity. But we also have to think of the function again. And is the function being compromised?

This says symptoms of spasticity, but I typically like to think of this more as the consequences of spasticity. We talked a little bit earlier about symptoms such as the muscle reaction itself.

But these are consequences that some patients experience if they have significant spasticity. There can be difficulty with care and hygiene. There can be abnormal posture and balance. This can be gait, balance, and as well as sitting in a wheelchair. We never want to get to the point where there are true contractures because that means that the muscles have shortened so much that there's a fixed limitation that's often very difficult to correct.

Certainly, without surgical intervention.

Bone and joint deformities can occur, especially if you get contractures and the joints are held in an atypical position. Some people are not able to then stretch out their knees or extend their hips. It makes

sitting or lying in bed or other functional positioning much more impaired.

Fatigue is something that people often don't think about, but many patients with spasticity do feel excessively fatigued and the question is why?

If you think of each person having a finite amount of energy to use in a day, muscle spasticity is muscle activity. For those muscles to be active, they have to be utilizing energy. If energy from, is utilized involuntary, there's less energy to use throughout the day to accomplish tasks that we all need to do.

And last, the development of decreased functional activities as we talked about before. Some people get, especially in children, they have delayed motor milestones if spasticity prevents the normal development.

Delayed motor milestones.

Spasticity can certainly impact your life.

But, again, thinking, function, function, function. There's certainly the potential to impair the ability to walk properly or use the extremities, just like the things that we talked about before. But more importantly, this can lead a decrease in one's overall independence and perhaps one's ability to fully participate in community and social activities that are important to all of us.

Again, if we think back to my rules of before, in spasticity that interferes with one's ability to be successful, is spasticity that may need to be treated.

And sleep disturbance is one that we often take for granted. But as all of us know, if we are sleep deprived, whether it's our own spasticity or our partners, we have decreased productivity, we often become irritable with other, and frankly, we may just be a little bit cranky, and that's something we all try to avoid.

From a spinal cord injury standpoint, spasticity is extremely common. Spasticity may be a function of the nerve injury itself, but worsening spasticity can also be a warning sign that there's something else going on.

Patients that may have a urinary tract infection or developing an infection or skin breakdown. You need to look at underlying causes and not just assuming that the increases meaning changing medications.

Approximately a quarter of a million people in the United States that have spinal cord injury. These are general statistics about the frequency of patients with severe spasticity that from spinal cord injury living with spasticity. From the one diagnostic category you can see there are over 75,000 people currently living with significant spasticity in the United States. It's not an insignificant problem. When we look at multiple sclerosis, the diagnosis is not something we'll focus on here. I am not a neurologist, nor do I try to play one on webinars, but this disease is one that's essentially an autoimmune

disease where the myelin sheath, the insulation of the nerves, is effect. Thus, the nerve cells are not able to conduct the messages as well to where they're supposed to go. And that impacts the nerve's ability to function and thus the muscles to be active.

Physical there are significant changes, we get what's called plaques. That's a result of essentially scar formation in the nerve fiber.

Similarly, as an example, if you have a straw, and you pinch the straw a little bit, you may be able to function with the straw, but the more impaired the straw is, the more difficult the use of the straw becomes.

Even though I am not a neurologist managing multiple sclerosis, I see an awful lot of patients with multiple sclerosis who have significant spasticity. It's one of the more common findings in patients with spasticity. It can affect arms or legs. And, again, it can lead to the same kinds of complications we talked about earlier. One of the difficult situations with multiple sclerosis is when do you actually intervene and how aggressive should one be?

Some patients may feel that the spasticity is not bothersome at the current time. If an exacerbation occur, and suddenly the spasticity worsens, could we have impacted or minimized some of those complications if there was already some spasticity intervention going on. Minimized some of the complications. Those are topics that you need to discuss with the treating physician, but it's something to keep in mind.

We don't know with multiple sclerosis whether the flare-up or of exacerbation will it get better, stay the same, or will it get worse? Build we try to predict, but we don't always know. We have to think about the complications with multiple sclerosis and spasticity, and whether we need to intervene early.

Just like the numbers with spinal cord injury, were fairly impressive, the number of patients with multiple sclerosis and significant spasticity is even more so.

There are more patients with multiple sclerosis in the United States than with spinal cord injury.

And the number of multiple sclerosis patients living with severe spasticity is over 130,000.

So we're talking, again, very, very significant numbers.

Just these two diagnostic groups over 200,000 patients with severe spasticity.

Can spasticity be treated?

Well, absolutely it can. There are a number of ways that spasticity can be treated.

We may not be able to totally take away spasticity, but we want to make it more manageable and tolerable.

These are some of the general categories of interventions that are utilized in the treatment of spasticity. I will highlight and touch on a lot of these, but focus on a few things in particular.

One of the things that we must think about is spasticity, general or focal. Meaning is it just in one aspect of the body or throughout

multiple areas of the body, and that will help determine what the treatment plan should involve. Step one is what we call rehabilitation therapy. That's usually done either at home or in a hospital or in an outpatient clinic. It may include traditional physical therapy, occupational therapy, or even speech therapy if it's affecting the throat or face.

However, some of the other specialties that are often involved, other licensed professionals such as therapeutic recreation services and even massage therapy may be helpful in helping to manage spasticity.

The underlying treatments particularly involve stretching, strengthening, working on functional tasks, and perhaps using modalities such as heat or cold to help control some of the muscle firings.

And those will depend on individual patients.

There are a number of medications that we use to treat spasticity.

Some more so than others. Some of these are very dependent on the underlying diagnosis. One of the most common medications used is oral baclofen.

Baclofen and Valium have similar characteristics and can lead to sedation. We don't use much Valium anymore because of the addictive nature of it. It is a treatment in the spasticity. It works on the spinal cords themselves, and helps to send the relaxation signals to the muscles and help them not be so active.

Dantrium is a medication frequently used, and in some cases underutilized. Works on the muscles directly. It blocks the muscle fibers themselves if contracting. There are two main difficulties with Dantrium, one is that blood work needs to be done on a fairly regular basis because there are some risks of liver toxicity. This can be assessed by doing simple blood tests and the basic changes, if any occur, which is not very common, go away with stopping of the medication.

The other somewhat challenging aspect of Dantrium is that it doesn't know spastic muscles from normal muscles. Interfere therefore everywhere, there have been reports of patients feeling they were weaker overall because of normal muscles that may have been affected by the

medication itself. The last sort of major group of medications is the one, including the medication, tizanidine. It's more of a centrally acting medication.

And it works to help send signals from the brain and spinal cord to the muscles themselves. The main drawback to this group of medications is that it can lower a patient's blood pressure. Tizanidine is a derivative of the medication, CLONODINE, an older blood pressure medicine. Those with spinal cord injury in particular, often have -- blood pressure.

They have low blood pressures to begin with already with spinal cord injury. They need to monitor so they don't get light headed or dizzy. All of this can be discussed with the treating physician. Additional therapies or perspective. Sometimes it takes a combination of medications to help address spasticity and not just any one particular medication.

Some patients may not achieve the results they want, our may not be able to achieve the results that you want, and in some cases the side effects may be very problematic. As mentioned, some of the medications do cause sedation. Some patients can tolerate that better than others.

Other patients may have difficulty with low blood pressure. In that

case, they may want to try alternative therapies.

Alternative therapies can include not only some of the more aggressive therapies but there are practitioners that do try to utilize truly alternative measures such as acupuncture, et cetera. We're not going to discuss those today, but it's something to consider if need be based on your tolerance to interventions.

Two of the more common interventions beyond oral medications are injection therapies. These are designed to act at the nerve muscle end point.

One of them in particular is the botulinum toxins, in particular, Botox, that work on blocking the uptake of nerve transmitters and, thus, help prevent the muscles from firing as frequently.

Phenol and alcohol are injectable medications that are a little bit more permanent in the sense that they last a lot longer. They take more time to perform in general. And there are some side effect potentials in rare cases where people could have pain as a result of the damage to the nerves themselves. But in good hands, and people that are experienced, these often are quite effective.

Selective rhizotomy are listed here but not done all that commonly any longer. They were typically done in children, especially years ago, and in this procedure, a surgeon actually cuts some of the nerve fibers as they come out of the spinal cord as they come to the muscle itself. You are usually cutting the sensory part so that the feedback, the stimulation that causes muscles to fire, may be impaired.

As you are cutting nerve fibers, it's clear this is not a reversal procedure. So it must be done with extreme caution and judiciousness.

And there's often a need for significant fall therapy to help make sure that function is maintained. And at times even retrained.

Orthopedic surgery is listed commonly as a treatment for spasticity but in effect it really doesn't treat the spasticity. This is as we talked about earlier, sometimes muscles are so tight and stuck that you can't stretch them back to their original positions. If it is truly interfering with function, sometimes a surgeon may actually cut part of the tendons, or the tendon fibers to allow stretch again and that may provide better range of motion. The tendons. If they do not address

the underlying spasticity, this can recur. As such, one needs to, again, go through the stretching and perhaps medication interventions to allow the prevention of these contractures from occurring once again.

Intrathecal therapy is something that's been around for over 20 years. It's something that I enjoyed spending time talking about.

It is listed here at the end of the many of the interventions, but one thing that is certain is that intrathecal baclofen is not a treatment of last resort. BACLOFEN. The pill, the medicine has to work its way through the bloodstream and get to the spinal cord. With the intrathecal therapy there's a pump planted and a catheter threaded from the body to the spinal cord space. Therefore, the drug is delivered directly to the spinal cord area without going through the bloodstream. As a result, there's much less sedation, and the tolerance for the medication delivered this way is significantly improved.

In my opinion, the medication is also tremendously more effective because you are able to get the medicine directly to the nerve cells.

The amount of actual medication is 1/1000 less as a general guide line, less than what you would need to take by pill to reach the spinal cord. It's one that one certainly needs to consider.

It sounds like it's very involved and in some ways it is. Because there's a team that needs to be participating to make sure that intrathecal baclofen is delivered and managed appropriately.

We go through a fairly elaborate process to make sure that any one patient is a good candidate for intrathecal baclofen. There needs to be a functional need that needs to be improved, whether that's burden of care or truly ambulation. It could be anywhere along that spectrum.

There are those of us that have been doing this for a long time that know that medications will not help certain people with the degree of spasticity they have, and, therefore, we may look to use intrathecal baclofen much earlier than some other providers might.

What we do is assess patients for the likely benefit and then we do a test where we -- a test dose, where we inject a medicine into the spinal cord injury, especially a lumbar puncture, which many people have already experienced. It's usually not a painful procedure. If

done well, it's fairly quick. Over the next several hours, we monitor patients to see the effect that they have. And in my experience, there have been incredibly few patients that have not responded to this medication.

It almost always provides an appropriate response, and we know then that the patient will actually tolerate and benefit from intrathecal baclofen.

Once that happens, then it's up to the patient and their treating healthcare providers to decide if they want to go ahead and implant a pump. Which, again, is a surgical procedure.

And over time that pump can be adjusted. That's one of the beauty of this intervention is that you can adjust the dosage, not only person to person, but within times of day. Some people whose spasticity is worse at night may have a higher dose delivered during the nighttime to help prevent some of the kicking that we talked about earlier.

There are some people that have particular times transferring in or out of cars or at their job site there's a specific time that is always worse,

and you can adjust the delivery of the pump, the delivery of the medication via the pump to help maximize the benefit that patients can receive.

So, again, it sounds like a difficult and swap complicated intervention, and it -- difficult and sounds comp ever complicated and does need to be used with care, but in the right hands I think it makes a difference in our ability to manage spasticity in our patients.

It 1 a long-term commitment. There are details about intrathecal baclofen that we can spend time talking about or you can talk to your provider about. But it works, in my opinion, like very few other things.

So one of the aspects that I would like to leave you with is that spasticity is something that is truly potentially problematic in a lot of patients. Spinal cord injury, and MS in particular.

But there is -- there are ways to treat it. There are ways to improve function. And there are many things in the available. There is no absolute cookbook way to go through this. But by spending time and

discussing the situation, and really focusing on what the goals are, oftentimes spasticity can be significantly improved, and thus function and quality of life can be significantly improved.

So with that, I will turn it back to Bill. And if there are any question, we'll try to address them as best as possible. Thank you for your time.

>> Bill: Thank you, Dr. Bilsky for your presentation. In overview fashion, we have questions. I would remind the audience that if you have additional questions, to pose them now. We'll try to get to them today.

Dr. Bilsky, first, is from an individual who had a stroke. Two years ago. Due to complications during brain surgery. The person's left side was affected. Whenever they yawn, their left hand trembles, mildly. Would this be a result of spasticity necessarily on the left side?

>> Dr. Bilsky: That's a good question.

It is a sign of increased reflexes or hyper reflexia. And that is a -- REFLEXIA. It may not be hyper spasticity, but it's definitely what we see with stroke and weakness on the one side. Some of the medications and injections we talked about may be helpful, but one

has to see if that's really problematic. It may be just a phenomena. But if it's not really interfering, then I wouldn't worry too much about trying to prevent that.

>> Bill: Okay. Thank you.

We have a couple of questions on the topic of medical marijuana. Would you like to comment on use of medical marijuana to manage spasms and has that been suggested of late?

>> Dr. Bilsky: That's a very difficult question to address for a number of reasons. Certainly there is -- there's a lot of publicity in many states about the use of medical marijuana or cannabis oil in the treatment of certain conditions.

Given the current climate, it's not something that most physicians are able to discuss freely or certainly advocate given the legal situation that we're in. But there have been a number of anecdotal evidence and reports from patients that it does have an impact on spasticity.

Probably as far as I can go on that topic, currently.

>> Bill.

Okay. Just an address. Thank you.

And the next question from the audience, I know we are discussing spinal spasticity primarily, but in the case of cerebral, or maybe even spinal spasticity, what are your thoughts on spasticity that comes with sleep?

calms with sleep.

>> Dr. Bilsky: Spasticity that calms with sleep.

>> Bill: Apparently that comes down with sleep. It calms down.

>> Dr. Bilsky: It's very common. Special with spasticity with cerebral or brain origin. Because when you are asleep, obviously you're not actively trying to send signals to the muscles. When you are up and about, patients that have had stroke or a traumatic brain injury, when you try to move, the nerves often can't direct those movements.

Only to the muscles that they want to move. There's a generalized kind of flood of stimulation to multiple muscles. And therefore it's very common for patients with cerebral origin spasticity to have much more difficulty during the day and with attempting specific tasks. It often does calm down and ease up while they're sleeping.

>> Bill: Thank you.

The next two questions would really be related to long-term situations. And the first is, SCI caused spasticity progressive?

>> Dr. Bilsky: I'm not sure the specific question. But does spasticity worsen?

Is that what you think the question is?

>> Bill: I believe. Is spasticity caused by spinal cord injury progressing?

>> Dr. Bilsky: In the short term, I would say the answer is yes.

Meaning that spasticity may not develop within the first several weeks or even months in some patients. And some patient, depending on the level of injury, may never get spasticity. But patients that do develop spasticity, it may not initiate until a month or maybe even longer after the actual spinal cord injury. Over the ensuing months, spasticity may actually progressively worsen.

There's often a time period -- and not an exact time period at all -- but the spasticity will often hit its plateau. And typically it doesn't worsen throughout someone's life, but it often progresses to a point where it hits its maximum for that any one individual. So someone injured for five years, for instance, it would be atypical for spasticity to initially develop that way, or continue to progress and truly change that late unless there were other under-like causes such as infection or DECUBITUS ulcers or another infection stressing the body.

>> Bill: Thank you for the explanation of the answer. The other

long-term question, coming next, are there any long-term effects?

I take it side effects -- from the intrathecal baclofen use?

>> Dr. Bilsky: In my opinion, there's no side effect on the long-term intrathecal baclofen use. The dose needs to be adjusted throughout. It may be someone stable for a long time their activity or body may change, and the dosage may have to be adjusted. The long-term aspect, I guess, that needs to be mentioned is that the battery life currently on these pumps is about seven years. So every seven years as of 2015, the pump needs to be replaced. It's usually a same day or at most overnight procedure where the surgeon goes in, unhooked the catheter from the pump, takes out the pump, puts a new one in, and reattaches it and the patients are generally good to go. So it's not a long-term side effect, but it's just a part of the management that needs to be considered.

>> Bill: Okay. Thank you for that.

The next question.

How do we distinguish between posturing and spasticity, as far as treatment options?

>> Dr. Bilsky: That's a good question. Sometimes they're similar. Posturing is a sign of hyper activity of the nerve muscle system. So

patients that are posturing may indeed be showing spasticity, but the posturing, depending on the clinical situation, may need to be managed differently. If it's someone -- the question earlier about someone yawning and their arm drawing up, some consider that a form of posturing, whereas others, if someone has an acute injury, and newly injured, and they may not be fully conscious, for instance, with a brain injury, then you may have to intervene differently with different kinds of medications to help calm the body down.

So I am not sure if that fully answers the question, but it's -- without knowing more specific, that's probably as close as I can come.

>> Bill: Sure, sure. The next question. There are no shortage of question, we have them rolling in at the end. Some of the answers are prompting more question, which is good.

Are there any therapeutic treatments for chronic spasticity, this being in the left leg, from spinal cord injury.

Either physical therapy or medicine?

Or any therapeutic treatments for chronic spasticity.

Well, I don't know if you want to reengage that, you know, from your overall presentation.

>> Dr. Bilsky: Well, I think suffice to say that I think there certainly could be. Especially if it's localized to one extremity or even one part of one extremity. I think there's no question that there are some interventions that might be beneficial. A good example for someone to, if they have not participated in physical therapy and gone through stretching and strengthening and perhaps some functional activity, that's a good time to maybe reengage with physical therapy. But also some of those injections, for instance, perhaps the botch light-in, or the phenol injections may be helpful from the localized spasticity. Botulinum or phenol injections.

>> Bill.

Very good.

The next question. The individual became -- incurred C4, 5 quadriplegia in 1964. After a few years regained about 90%. Worked until 19196. Went on disability, and now semi-paraplegic. 71 years. Any research on age and problems with spasticity due to age?

The person was 21 at the time of the injury.

Now 71. Increasing problems are occurring. Is there any research to be had or any opinion you would like to offer related to aging with –

>> Dr. Bilsky: First of all, I would like to commend this person to how successful he or she has been, and certainly as a role model. I wish my patients could meet this individual. It would certainly reinforce how positive things can be following a spinal cord injury. That's point No. one.

Point No. two, there's a lot of research going on right now looking at aging and the impact of aging on patients with spinal cord injury. For many years, we had zero information. But as patients have lived longer and the data collection, many or several of us, our facilities participate in a national data collection system. So we're getting more information about patients that are aging with spinal cord injury. There's no absolute conclusions that I would want to profess at this time, but we do know that there are certain things that to change, and are exacerbated. Those of us that are card carrying members of AARP anyway, kind of know that we are, have more soreness and aches that we might have 30 years ago. And patients with spinal cord injury that are using muscles for a longer period of time in ways that perhaps they were not designed to be used, often experience higher rates of arthritis, and higher rates of muscle strains than the general population. So there are a number of things that are being looked at. We have not really got it down to -- we know there are changes in bone accidence ticker -- but we have not really gotten down to cellular changes such as with kidney disease any of those things. If that's the

specific question.

>> Bill: I would add, if you go to www.unitedspinal.org, and -- spinalcord.org, and use the search box for searching the word aging, it'll bring you to our stored resources on a variety of subtopics that directly relate to aging with a spinal cord injury.

We have some extensive information posted in our knowledge books on aging with a spinal cord injury.

The next question, Dr. Bilsky, is [indiscernible] training good for spasticity, and whether heavy weight or lightweight being used?

>> Dr. Bilsky: Another excellent question. And I think rehabilitation specialists handle this question quite frequently with all of our diagnostic categories. Strength training can be beneficial, but probably stretching and maintaining flexibility is more important. For people that do want to work on increasing strength itself in muscles, you want to focus on the appropriate muscles. For instance, a muss well significant spasticity, if you worked on actually strengthening that

muscle, it may not make the spasticity worse, but it may make it more difficult to maintain the range of motion and flexibility that we all want.

As a general rule, I tend towards telling my patients that strength training is okay, but I would looking at low weight and higher repetition than looking at higher weight and fewer repetitions. Low. Our goals are to be more functional throughout the day. Not being able to accomplish a single task one time. So as I tell my patient if I can move a refrigerator across the one time, and then exhausted and am done for the day, that's probably not the problem. And then if I can move them more frequently that makes more sense.

>> Bill: I am 37 years post, and that's injury, I would presume, and have taken Valium for years. What might be a valuable alternative? C3 and [indiscernible] CI. 37 years post.

>> Dr. Bilsky: A couple different things with that. The negative -- first of all, the positive is that we know that Valium helps spasticity. From that standpoint, hopefully your spasticity is better controlled than it was prior to the utilization of Valium. The big problem is that Valium is one of the more addictive drugs that we have out there. And one needs to be very careful with that. Given the fact that someone is 37 year it's post injury, I am not sure

that becomes as big a factor right now, but as we mentioned earlier, with body changes and we age, our tolerance for medications may change. Therefore, that's something one needs to be careful with discussing with their healthcare providers if they are starting to not feel right, the Valium dose may be too high for their current body situation. But also there may be interactions with Valium and other medications that people may need, especially as we age. So that's something else to consider.

And just as a personal nature, I think the fewer medications that have an addictive potential, the better. And lastly, that it's becoming more difficult in our current healthcare environment to even be able to prescribe medications such as Valium due to a lot of the oversight and abuses that we see in the country today.

So it's something to just be careful with.

>> Bill: Thank you.

The next question, if spasticity is increasing over time, is intrathecal baclofen therapy a good option?

>> Dr. Bilsky: Well, I would just hesitate only in that if spasticity is increasing, when it's been stable to for a long time, then we need to make sure that there's not something else going on and make sure there's not an infection or something more serious going on and we don't want to miss something that is treatable, that may be unrelated to spasticity in and of itself.

Having said that, I think intrathecal baclofen is an option for spasticity whether it's increasing or whether it's stable, if it's stable but not meeting someone's -- but not meeting someone's needs, and they're looking for better function, I think intrathecal baclofen is certainly worth considering. And I guess that dove tails if someone's spasticity is not being managed well enough, and not because of the fault of anybody, but it's not being controlled enough to provide the functional relief or the quality of life, then I think intrathecal baclofen is definitely worth considering, especially if there are no contraindications from their other healthcare issues.

>> Bill: Thank you for that detailed description and explanation, Dr. Bilsky.

The next question.

Has an incomplete spinal cord injury patient, level has indicated thoracic level, No. 5, 6. It's more associated with abdominal muscles

that fire over the course of the day while sitting leading to increased pain. The longer I sat, the muscles tighten and more pain.

Baclofen, but is this more about muscle function causing more spasms and then pain or is pain more a result of muscle function or just getting tired?

>> Dr. Bilsky: The questions have been fabulous. Abdominal spasticity is one of the most challenging aspect that we deal with. A very difficult local area to impact. The medications can help. And sometimes it requires a combination of medications, but, obviously, you don't want to be sedated, especially during the day when people are trying to accomplish a lot of things. It's a very difficult area to manage with injections of botulinum toxins, for example, because there are so many small muscles around the ribs and the abdomen that it's almost impossible to use the botulinum toxin.

There have been a number of pitch, whether rehab providers or pain management specialists that can do localized nerve blocks that may modulate solve the signs. And that's worth looking into and talking to your physicians about.

>> Bill: Thank you, the next conversion I have two [indiscernible] catheters break and currently have my pump turned off. The oral meds, baclofen, and Valium, are sedating and not very effective. Do you have thoughts and concerns if I were to replace the pump, and add a third catheter into the spinal canal?

>> Dr. Bilsky: Well, I have concerns -- I think that's mostly unfortunately just bad luck. It doesn't happen very often. I will say that the newer catheter that's been out for the past few years is much more resistant to breakage or coiling or complications.

So the new catheter, called the ASCENDA (Sp?) catheter, if that's not what the person has used before, it may very well be worth pursuing. Re-implanting the system or revising the current system, and changing out the catheter might be worth pursuing. Clearly the oral medications are not working currently, and didn't work well enough in the past, or else intrathecal baclofen wouldn't have been in their treatment regimen. I wouldn't necessarily shy away from it if it's been a catheter issue, but I would look to making sure that the newer catheter is being considered.

>> Bill: Thank you.

The last question that I have in front of us today is, what are the treatments for nerve pain associated with spinal cord injury but in quotes, is that even an at effect of this event?

So the asker is really concerned with nerve pain as opposed to spasticity. I am not sure if you it wouldn't address that or not.

>> Dr. Bilsky: Well, it's certainly not a part of what we were discussing throughout this afternoon, but it is a very common issue with patients with spinal cord injury and MS as well, but more spinal cord injury typically. There are a number of medications that are

helpful in the treatment of nerve pain following spinal cord injury. If the goal is to be pain free, that may not be realistic. But certainly there are a number of medications that do help decrease the degree of nerve pain and therefore increase the quality of life.

And there are some that are fairly new. And there are some that are, frankly, very old school that are still working quite well. So it's definitely worth discussing with your healthcare provider.

>> Bill: Thank you for that. Last question. Just came in. Is there any particular concern that you would have, Dr. Bilsky, for spasticity symptoms such as the rigid and spastic stiff legs, stiff leg muscles, upon lying down at night, lying down in bed when someone has become prone for the day?

>> Dr. Bilsky: Not necessarily a concern, but I think, again, that's an area if that stiffness is bothersome and interfering, then the treatment needs to be looked at. If someone is taking oral medications, then maybe the dose at night can be increased. If they're already maxed out on oral medications, this is often a good case, a good chance to think about intrathecal baclofen and get off medications and titrate the dose. But if it's just a physical manifestation but not really causing problems, not causing skin breakdown, not interfering with sleep, then there may not be a reason to treat it at all. It's just a matter of if it's impacting any one particular person.

>> Bill: Understood. Thank you. On behalf of the United Spinal

center. I would like to thank Dr. Bilsky for sharing his professional knowledge, on options for treating severe spasticity. A note on our next webinar. March 18 at 3:00 p.m. eastern. It'll be on the topic of pain and spasticity management without pills. A different approach. Presented by Jennifer French of Neuro Technical network. And Doctor Kimberly Anderson of the Miami project. To sign up for the webinar, visit us at www.unitedspinal.org and receive the newsletter. Check out the monthly additions of the magazine, everything active wheelchair users need to know. Visit moveability.com to see what we're all about. Moveability.com.

And this will end today's presentation. Thank you, Dr. Bilsky.

>> Dr. Bilsky: Thank you all.

[The presentation is finished].