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Can a Needle in the Neck Prevent Hot Flashes? A Look at an Alternative Treatment

You are listening to ReachMD XM160, The Channel For Medical Professionals. Can a needle in the neck prevent hot flashes? With me today is Dr. Eugene Lipov, an anesthesiologist and medical director of Northwest Community Hospital's Advanced Pain Center who has pioneered the use of stellate gangrene blocks to alleviate hot flashes.

DR. LAUREN STREICHER:

Welcome, Dr. Lipov.

DR. EUGENE LIPOV:

Thank you.

DR. LAUREN STREICHER:

Now estrogen of course relieves vasomotor symptoms and works very well in even small doses, but many women can't or chose not to take estrogen. Herbs, hypnosis, SSRIs, antiepileptics, and hypnosis have all been utilized with varied and sometimes not so much success. So, it seems that an anesthesiologist will be the last person to get involved in hot flash therapy. So, how did you get involved in this research?

DR. EUGENE LIPOV:

Well, the way we got involved in it is I had a patient that had severe hot flashes, which I referred to my brother who is an internist and he tried all the above that you mentioned except for estrogen, so everything failed, and he sent her back to me and he said, well it's your patient, why don't you try a stellate ganglion block because stellate ganglion is utilized usually for CRPS or RSD where part of extremity is usually perceived as hot. So, he may intuitively preface and I said well, there is a big difference between arm and the entire thing, entire body being hot, but he said, well I think there may be underlying same mechanism and he said why don't you try it and then I tried it on that first patient who was highly cooperative and she had a great response and then we actually forgot about that technique two years until my nurse had a problem with severe hot flashes.

DR. LAUREN STREICHER:

Well, you know, I mean obviously the etiology of hot flashes is quite complex and we know its a tied to a thermoregulator dysfunction, the hypothalamus, so can you be a little more specific about how a stellate ganglion block stops the flash from occurring?

DR. EUGENE LIPOV:

Yes, in fact we have one publication in 2007 regarding that and putting another one together shortly in 2009, which I think will be a lot more informative, but I can tell you what I believe it does and how it works. There are two pieces of information, which we published in 2007 paper of medical hypothesis. One was done by looking at a retro rabies virus injection. Retrorabies is a neurological tool where rabies virus has affinity of nerves, so if we inject a stellate ganglion with a retrorabies virus and see where the connection lies, those researches in 2002 found 3 main areas of connection. One was insular cortex, two was hypothalamus, and three was amygdala, and then another study was done by Dr. Freedman in 2007 where a functional MRI was utilized to evaluate which part of the brain was active or hyperactive during hot flash where he took 10 women here up in South Dallas who produce severe hot flashes and scanned their brain. So, they found that insular cortex lighted up during that functional MRI. So the point of our paper in 2007 was yes, there is a direct connection from the stellate to the brain, which I wasn't aware of and most doctors are not, but two there is also part of the brain that are connection to that further demonstrates that that's the area of activity during hot flash. Everybody assumed it is hypothalamus as you each did, but that seemed to be insular cortex, the huge part of reception of heat. In fact, insular cortex is also similar in effect to the CRPS or RSD where part of extremity is the main symptom. So since that day, I have been further investigating what the etiology is. In fact I have been searching for a possible unifying theory if you will. Why does the stellate work on hot flashes? Why does it work on CRPS? Our new paper actually is coming out next week about using stellate for PTSD, posttraumatic stress syndrome. So, I was seeking a unifying theory and this is what we found so far. It's been an interesting evaluation. What we found is seen as a common factor, NGF, nerve growth factor. If a nerve is injured in CRPS, NGF is produced, that's been known for many years. If the ovaries or oophorectomy is performed on a rat, then the NGF is known to increase by 53%, which is a huge extent. If a soldier, they are about to jump out of the plane for training exercises for sky diving, NGF is also increased about 15%. NGF further is picked up. This is all based on rat model, but you know it is fairly relevant you'll see in a second, so NGF is picked up in the brain by the axons that touch to whatever the NGF is, then NGF is being carried to cell body. Cell body is in response by producing sprouting, which is if you would imagine tip of the axon sprouting like a leaf, that's been known in pain literature for many years, but it's never really been discussed and related to hot flashes. So, sprouting further produces norepinephrine. Norepinephrine if injected in the brain of the rat produces hot flashes, which is quite interesting. If you put local anesthetic on the stellate ganglion what happens that it turns all NGF. NGF goes down, sprouting stops, norepinephrine level goes down, hot flashes stop, PTSD stops, CRPS stops.

DR. LAUREN STREICHER:

That is amazing. So, we really do know specific mechanism of action. Now that the injecting local anesthetic into the neck for those of us that don't do it routinely sounds painful and difficult. Can you describe what a patient experiences during a stellate ganglion block?

DR. EUGENE LIPOV:

I think it depends on a few factors. It depends one on the patient. There are people who are naturally historic and there are naturally people who are extremely fearful. People who are fearful, by the way, whenever a stellate ganglion is performed, a IV is always placed with or without anesthetic, that's done for safety reasons. So, if patients, say, are fearful or anything like that we give them sedation. We also have special patches, which we have been working with, which is like a lidocaine patch to numb up the skin. We also use fluoroscopy, so we can see exactly what we are doing. Thus the amount of time required to achieve the correct level is small.

DR. LAUREN STREICHER:

How long a procedure this is generally?

DR. EUGENE LIPOV:

Two to five minutes.

DR. LAUREN STREICHER:

So, it's very quick?

DR. EUGENE LIPOV:

It is very quick. So, most patients perceive it as they are much more frightened before they go in than when they come out. They go "This is the all that is? When you're going to start?" and then in the recovery room you know they are okay, but the possible complications, there was a paper in 1993 out of Germany. That is the only paper I saw that was actually done to see what really happened in the real working, imagine many complications, but in 1993 in Germany. Keep in mind this was done without fluoroscopy, so this was prior to fluoroscopy. Fluoroscopy should be much safer because we know where we are at, so out of 40,000 stellate ganglions performed in that year in Germany, they saw 16 seizures, they saw 16 seizures, they saw 9 subarachnoid spread, they saw 7 pneumothoraces, and those were the complications.

DR. LAUREN STREICHER:

If you've just tuned in, you are listening to advances in women's health from ReachMD, The Channel For Medical Professionals. I am Dr. Lauren Streicher and I am speaking with Dr. Eugene Lipov, an anesthesiologist and medical director of Northwest Community Hospital's Advanced Pain Center who has pioneered the use of stellate ganglion block to alleviate hot flashes.

DR. LAUREN STREICHER:

Now, Dr. Lipov, do you see immediate relief or is it something that takes time?

DR. EUGENE LIPOV:

About 95th percent of the time, the relief is within 24 hours. In about 10%, it may take 2-3 days.

DR. LAUREN STREICHER:

And have you had anyone that you've not had a reduction in flashes?

DR. EUGENE LIPOV:

Yes. So far we've done approximately 125 patients and I would say 7 had minimal effect.

DR. LAUREN STREICHER:

And you ever repeat the block or if someone turns in?

DR. EUGENE LIPOV:

No, we repeat it. Usually if the first one fails. Second one fails too.

DR. LAUREN STREICHER:

You know, most women experience vasomotor symptoms just for a year or two, but for others it's a lifelong problem. So, do you know how long the block lasts? Is there something that needs to be repeated at intervals or is it a one-time thing?

DR. EUGENE LIPOV:

I will just give an example. There was a young lady who had breast cancer at 32 and then she got the chemo and she had a very awful story. We did one stellate ganglion block 4 years ago. It lasted 2 weeks. The second one had lasted so far 4 years. We have done a study that was published in Lancet Oncology in May of this year over 13 patients. There was a followup, 52-week followup that was published in September of this year. This will give you a good feel of how it works. So it is a 52-week followup. Out of the 52-week followup out of 13 patients one only needed one block, 3 needed 3 blocks, and 9 need 2 blocks only. So most people need 2 blocks for a period of a year and the responses were huge. We went from let's say 75 or 80 hot flash average per week down to 2 or 3.

DR. LAUREN STREICHER:

And it seems that if women tolerate the procedure as well as you say that repeating it is not something that most people would hesitate to do. Sleep alteration is another issue for many menopausal women and I have seen your reports that this procedure can affect sleep as well. Is it that the hot flashes are alleviated that wake the women up or is the block actually doing something with the altered sleep patterns that we note to be a problem during menopause.

DR. EUGENE LIPOV:

Yet another excellent question. Obviously not your subject. In our publication in Lancet Oncology, we were able to demonstrate average weekly wakeups where about went from 20 to 102 for a week, which was a huge effect. As far as the mechanism, I have a theory on that. At once it may be just a hot flash reduction; however, there is a suggestion at least I found in an article in 2002 that subject showed stellate ganglion block actually affects melatonin levels directly. I have not had the resources unfortunately to study that and you know, we are trying to find out, but I am very interested in evaluating melatonin levels before and after the block. I believe the melatonin levels were moderately increased. There isn't that article was published. It was a medical hypothesis in 2002. They found that pinealocytes or the cells that produce melatonin degrade over time with sympathetic overflow. As the people age, sympathetic system is more active. So if you can reset it or do a sympathectomy on the rat for example, pinealocytes come back to life better.

DR. LAUREN STREICHER:

You know, few researchers have carried out scientific well designed studies and alternative treatments for hot flashes in part because such studies are extremely expensive and difficult to do, requires a lot of patience, a lot of time, but as you know another hurdle to the study of hot flash remedy is the high placebo effect from the products used to treat hot flashes and why do you give a woman soy, chinese herbs, or broccoli, at least 30% will experience fewer flashes for at least a few weeks. So, can you discuss with your data how you know that this is not just a placebo effect? Well, but these are questions we all have because there is so much out there that alleviates hot flashes and quite frankly we know that cohosh and all these other things don't work when we really look at them with appropriate prospective studies.

DR. EUGENE LIPOV:

Right. One is the course study and all the botanical through the study it was just completed by 2 universities, University of Illinois and Northwestern University. Dr. Polin Markey is actually my collaborator in my future study. So, I am very familiar with the literature there. As you say, placebo effect is 30%, our effect is 95%, so that's really not a placebo type number. Part of a reason I came out to Oslo is to do a placebo study, so you are absolutely right on that. We've had 3 patients that the block was done technically suboptimally shall we say where they did not have a Horner syndrome. We didn't inform the patient about any of that. All those 3 blocks failed, but usually you know, when we repeated the block with good Horner syndrome, they have worked. So to me that was the internal placebo.

DR. LAUREN STREICHER:

Yeah, that's very suggestive that is well beyond the placebo and it sounds very exciting and given that there are millions of women that suffer from hot flashes and we don't have a lot to offer beyond estrogen, how come we are not hearing more about this? Is anyone else doing this?

DR. EUGENE LIPOV:

Well, yes and no. Yes in the sense that I have now had about 10 or 15 unsolicited e-mails or people doing it and saying it was a great result. I will give you an example of it. There was a young lady that lived next to Duke University and I will show you the whole problem was this approach. She went to Duke University. She showed them my Lancet Oncology study. She said "Please do this for me. I have severe hot flash. I have breast cancer. I do need this." They said no. We are not going to do it for you. Northwestern University That is not the end of care, goodbye which is Duke University, high power institution as they come. So, she went on her initiative. She found a physician and said "I have hot flash. I need some help. Please help me." So, he said okay, fine. Insurance company of course won't pay it, so I assumed she paid out of pocket and then she had it done. On seeing me, she said, thank you very much for inventing this technique that changed my life completely. So, here is what I learned out of it. One, teaching institutions clearly don't want to deal with it at this point.

DR. LAUREN STREICHER:

But why, why?

DR. EUGENE LIPOV:

Why?

DR. LAUREN STREICHER:

Yeah, why?

DR. EUGENE LIPOV:

Well, because it out of the block. It is totally out of the box.

DR. LAUREN STREICHER:

I don't know if that is entirely fair. I mean, I think teaching institutions want to sometimes be the first on the block to do something that's.

DR. EUGENE LIPOV:

Well, that's fair. Let me give you an example. My interaction so far with teaching institutions. I went to Northwestern where I went to a medical school and I said I have this great block. I have this publication. They said we will study it for you, we are in the process. I went to other institutions that said the same thing. Interestingly enough, I went to Lancet Oncology. Article came out. I have met with this young lady from Oslo who invited me to do the procedures here and you could see I am clearly here doing the procedures. The same day an hour later I met with the chief oncology of one of the biggest most prestigious institutions in United States and I have been in touch with them and they are still looking into it.

DR. LAUREN STREICHER:

Well, the wheels do turn slowly in the academic world. I will grant you that, but it is very exciting research and I am looking forward to hearing more about it.

I would like to thank Dr. Lipov who has been our guest. We have been discussing the use of stellate ganglion blocks to alleviate hot flashes. Please visit our website at ww.reachmd.com, which features our entire library through on-demand podcasts. Thank you for listening.

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