Persistent Postural Perceptual Dizziness: A Common Cause of Chronic Symptoms

Presenter: Mikael Karlberg, MD

Welcome everyone and thank you very much for joining us for another Inventis Academia webinar. We are truly honored to welcome back today Dr. Michael Kalberg, President of the Burani Society, Associate professor at Lund University in Sweden and internationally recognized expert in the field of balance and vestibular disorders. With over 35 years of clinical and research experience, Dr. Kalber has made significant contribution to the diagnosis and treatment of vertigo and balance disorders. He has authored Multiple more than 60 articles in international scientific journals and several books. Today's lecture titled Persistent Postural Perceptual Dizziness a common cause of Chronic Symptoms will focus on PPPD or 3PD, a common functional cause of long standing dizziness often seen in patients with chronic symptoms.

Dr. Kalber will guide us through the diagnostic criteria, the importance of audio vestibular testing and neuroradiology to rule out structural causes, and the key role of asking the right clinical questions. He will also share his experience on how to diagnose and treat this disorder, highlighting the importance of collaboration between different medical specialties. As always, I strongly encourage you to ask questions at the end of the session and to complete the feedback survey. We'll send afterward your input help us improve Future Academia event. Dr. Calber, the floor is yours.

Enjoy the webinar and see you later. Thank you very much. Cynthia Scala well, it's great to be back again. It was a year ago I was sitting on top of a fjell in Norway talking about Meniere's disease and now I'm sitting back at my own home in Sweden. So this is me.

I started my formal Training in Otorhinolaryngology 1988 and already from the start I know that I was interested in vestibular disorders because it was totally unexplored field. No one really know anything and I haven't regretted my choice of work area. In 1995 I wrote a PhD thesis on the possible importance of neck Proprioception for balance disorders. 992000 I did a fellowship in Sydney together with the the real big fellows within this area, Professor Ian Kurthoise and Professor Michael Almadi and

learned a lot from them. And then coming back here to Lund I became an associate professor to Lund University and I've been working here since then and for the last two years I've been president of the Bahrani Society, which is the international multi specialty society for vestibular medicine, autoneurology and vestibular research.

And okay, where are we? This is where we are learned. A small town in the very southern Part of Sweden, quite close to Denmark and not that far away from Germany. So this is the sound, the water between Denmark and Sweden. So this is actually one big region, because since 25 years we are joined by the bridge from Sweden to Denmark, ending with the tunnel here.

So we actually one region now. Lund University has been around for soon 400 years. This is the main university building. In this is exactly what it looks like now, with green trees and flowers everywhere and blue skies. And we also have a cathedral.

That is, if you're interested in history. The guy de Mechilin says that it's worth a travel in its own right. It's the most northernly situated Romanesque cathedral in the world. And it's soon a thousand years old. Not much in a mondial perspective, but in Swedish perspective it's quite old.

Now I'm going to tell you a story and this will. This is a true story. The picture you see, that's my house. I'm sitting behind that window talking right now. And this is my own experience of my mind playing theater on my body.

So let's go back 36 years to the autumn of 1990 in Sweden. We had an economic crisis. Lots of banks went bankrupt and the interest rate suddenly was about 500%. And I went out together with my wife to maybe look to buy a flat. And after an hour we were standing in the office of a broker who sold houses and signed the paper for having bought this house together with another family.

And then really I could feel the whole room not spinning, but tilting like I was in a boat. And I had to hang on onto the walls in order to steady myself. And this continued for about 10 minutes. And I wasn't afraid at all because I realized that this is. This is not really any physically things happening.

It's my own feelings for setting myself in debt for the rest of my life. I had an old father who had survived both world wars and was in his 20s during the big economic crisis in 1929. And he always said to me, be careful, don't take loans. And now I did, did that and everything just moved for me for like 10, 15 minutes. So I realized very strong forces are at work when, when.

When your mind gets a bit upset.

So that's what we really can feel. And maybe many of you have. Have experienced something like this. Now this is quite 20 years later. The patient who made me become an autopsychiatrist.

I know that that specialty doesn't exist, but I had to invent it. This was a real man. He was building roads and now he had been on sick leave for more than two years because of menial disease. He had been treated at what we call St. Elsewhere, another hospital, with gentamicin.

He was deaf in the ear, but he had still more attacks. So what should we do? Well, I thought, well, there must still be some life in that ear, so let's give more gentamicin. So I gave him six injections, but he came back and said, still have attacks. What shall we do?

And then I really sat down with him and analyzed the attacks. And he never had attacks at home. But the further from home he went, the more common it was that he had an attack. And then he just had to sit down and was very uncomfortable. And as soon he, you need to try to get home as quick as possible.

And I thought, doesn't really sound like many earth attacks. Could this be conditioned panic attacks? And as he was so bad off, I just thought, how hard can it be? So this was the first time I prescribed serotonin. Serotonin reuptake inhibitor.

Very low dose and a very slow increase of, of the doses. And he came back to me a month later. And I could just see, watching him walking in the, in the corridor, that he looks like a new man. And he said, this was a good medicine you gave me. Can I go back to work?

Okay, yeah, you're welcome. So he started 50% work went okay. And after two months later, he was in full time work again, everything was fine. And I followed him for a year and asked him, how are you? I'm fine.

Why should we try to, to taper out your surgery now? And he said, no, no, no, no way, doctor, I haven't felt this good in years. And probably he lived happily ever after. So actually his Meniere's disease had induced a panic syndrome instead. And it was not until we treated, I treated that secondary anxiety disorder that he was communicating to me not as anxiety, but as vertigo.

And when that was treated, he was feeling okay. So that's a very clear cut. Patient with a secondary anxiety disorder. This is another story. It's a woman, a teacher.

She's 32 years old, absolutely healthy, no history of any psychiatric problems. And now she suffers from an acute vestibular disorder, spinning vertigo, when she's in a shopping mall. And from that time she suffers from chronic dizziness, nausea, fatigue. All examinations by her general petitioner, normal. She's on 100% sick leave.

She comes to me three months later, and absolutely normal examination. Excuse me.

Normal audiological test, normal. Vestibular test. Normal neuroradiology. And then I had started to use a quite simple a questionnaire called Hospital Anxiety and Depression Scale that is well known since 1983 and very easy to use in any setting. And she scored like no anxiety, no depression.

So what should we do? She started with cognitive behavioral therapy. She started vestibular rehabilitation and she slowly came back to work part time and up to after a year she could work 75% of her time. But then she was so tired so she had to lie down and sleep for an hour.

Three and a half years after onset, I saw her again. I've seen her a couple of times in between and I have. I had discussed with her to, to just try some kind of SSRI to see whether it would make her feel better. But she was very skeptical. But now it was the end of the term and the summer vacations were started.

So she said, well, okay, let's try it. And then I used another medicine that's called Escitalopram, starting with a very, very low doses and increasing. And then she came back to me in beginning of August and I still remember that she just looked me in the eyes and said, well, you were right, I feel 95% better now than I did in June. This is like comparing a bilateral pneumonia with a slight common cold. And she has continued with escitalopram, 5 milligrams.

And we have tried several times to decrease the doses. And then her symptoms gets worse. So what diagnosis can I give her? I can't give her an anxiety diagnosis. Not a depressive disorder, masked depression, functional disorder.

But actually treating her with an SSRI made her feel well. And that's the main point of my job. So this is the. You can download it if you go to Journal of Vestibular Research or if you go to the homepage of Bahrani Society. There's free access for all the diagnostics criteria by the classification society of the Barani societies diagnostic criteria for PPPD.

And you can see quite recent 2017. So now I'm going to give you a background of how it all came to be, this disorder. And it started maybe in the late 19th century, because during the 19th century quite a lot of Europe cities were undergoing big changes. Instead of these medieval cities with small winding streets, buildings were torn down and large squares were built. And esplanades, you can think about the esplanades in Paris or the large squares and esplanades in Berlin.

And then there appeared some interesting papers, for example, Benedict's Uber Platz Schwindel on vertigo on open spaces 1870. And he speculated that this should have a neuro of thalamologic background. The same time was now another guy called Cordes talking about Plaxed Ernst agoraphobia that is discomfort or anxiety in open spaces. And he was talking about the psychologic background and another investigator, Westphal is well known for the Westphal nucleus talking about the agoraphobia. The agoraphobia you see it's the same time and it's in the German speaking areas.

And he was talking this is a combination of control of posture, control of motion, spatial orientation and some kind of threat. All parts in the process leading up to this fear of these open spaces.

So during the 20th century medicine split up into ontology, neurology and psychiatry and agoraphobia became a psychiatric term. And the more physiological terms of vertigo and space and motion context disappeared. And that was until late in the 20th century. There were some case series coming out. For example supermarket syndrome 1975 with, with unease and vertigo, dizziness in supermarkets.

Space phobia was another term 1981 Paige and Gresty described motorists vestibular disorientation syndrome. And that's when you're driving in your car on the motorway and all of a sudden another car drives past you and you suddenly get the, the illusion that you are going backwards and it can be very disturbing and you stop driving cars because you, it's so scary and you don't want to lose control over your car. Visually induced motion symptoms physiologic height, vertigo etc. Etc. Then 1986 in German

language paper Thomas Brandt and Marianne Dietrich from Munich described disorder that they called Hobisher Attackenschwandschindel that later come to be known as phobic postural vertigo.

So it's dizziness when you're standing up and it fluctuates. It's a kind of unsteadiness. And these people had some kind of mild anxiety, maybe mild depression, often some kind of obsessive compulsive personality. And it, they describe it as common, persistent and possible to distinguish from other balance disorders. And they suspected that the background was a mismatch between the efference and the efference that you, you, you perceive your own motion as inflected on you from the outside.

Sorry. And this induced a stiffened postural control strategy just like you're standing on a high cliff in United States. Jacob described a phenomenon he called space and motion phobia, intolerance and discomfort. Three different Stages of the same problem with increasing problems for the patient. And these symptoms were triggered by active or passive movements in a visually rich environment, like a supermarket, like in traffic, moving visual objects and scenes.

And it was kind of an interaction between standing up, a vestibular lesion and anxiety. And it was also associated with the posterographic equi test where one of the things you can get, I watched it, it was somewhat a sensory dependent. In one of the tests, Adolfo Bronstein from London in UK described what he called visual vertigo syndrome 1995 that after a peripheral or central vestibular lesion you continue to feel vertigo or unsteady and that is triggered by exposure to a moving or a complex, complex visual surrounding. And that was because of after vestibular lesion you downgrade your dependency on the vestibular system and upgrade the visual system so you get visual dependent. And this was in 2009 created by the Banana Society as an own condition called visually induced dizziness.

Jeffrey Staub from the United States 2004 described chronic subjective dizziness. And it's, it's a lot like phobic posture vertigo but more focused on the physical symptoms instead of the psychological symptoms. Long standing dizziness, unsteadiness, not spinning vertigo, increased sensitivity to either

self motion or movements of the visual surroundings. Discomfort during visual precision work and that is reading, scrolling on computer, scrolling on a cell phone. And it could with you could separate this disorder with high sensitivity and specificity from disorders like Meniere's disease, vestibular migraine and bqpb.

This just gives a bit of a comparison between these different disorders that they are quite a lot looking like each other. But we didn't have one united formula for these patients. So that's why the committee for classification Vestibular Disorders of the Bahraini Society had instigated a behavioral subcommittee in 2010 to investigate primary and secondary psychiatric disorders that might cause or increase vestibular problems and also investigate the background and the evidence for these all suggested disorders. So the group was hematologist, neurologists, specialists in psychosomatic medicine and psychiatry from Asia, from Europe and North America, plus two senior OTOR neurologists as advisor. And that was Thomas Brandt, the creator of Fobusto Vertigo and Adolfo Bronstein with a vision vertigo.

So it was named then this a bit. Well it's a complicated name, Persistent postural perceptual dizziness. But that was in order to reflect that persistent meaning long standing but still possible to treat. The term chronic might in several languages be interpreted as being not possible to treat. And it was not vertigo.

It is dizziness, unsteadiness, non spinning vertigo. That's why dizziness was used. And it's mostly you have not much problem sitting or lying down, but standing up makes the problem worse. And there is a perceptual sensitivity to space and motion stimuli.

And of course in all these group work there, there are not. There are disagreement and agreement and it's, it's. This is a.

Well, you have to. To. To come to. To terms with this. And.

But they agree that this should be the name and these are the backgrounds in a way. So we have structural, structural causes like vestibular disorder or another medical disorder. We have sometimes a psychological background with a predisposition with pre existing anxiety. Some kind of psychological distress that might precipitate the thing. We have comorbidities with anxiety, phobia, depression.

And all these comes together and somewhere here they all meet, but can start with a structural problem in a specific psychological person with a some kind of psychological background. And then it goes over onto this functional disorder. And functional disorder meaning it's not longer caused by a structural lease and lesion, but by a change of function.

Well, sometimes when you have patient they just assuming that this is only psychological. And then you have to. To meet them and say well what do you mean by only psychological? Well, that it's. That it's not really real.

Okay. But then we have to. To get to terms that everything we perceive has an underlying physical or physiological correlate. Something happens in our brains, but we cannot see it with MRI and we cannot test it by any lab tests. And how do we do them?

Well, we talk about it. I usually tell the very skeptical patient that you know, there is a disorder that's very lethal. Okay. And that's depression. Depression has very high death rates because of suicide.

And how do we diagnose depression? Not by blood tests, not by X ray, but by talking to each other and finding out what's going on in the other patient. So it's so complicated that we need to use language and not blood tests in order to be able to diagnose things. And we all know that as soon as we stand up on two legs we are instable. And this upright stance must be analyzed and by our sensors, vestibular proprioception, vision and controlled all the time.

And we should not have to think about it. It's an automatic system. Otherwise we don't. We only have think about keeping our balance. And that's one of the points in this problem.

So Just standing up on two legs is some kind of underlying anxiety because we can fall over. There is some uncertainty inherent in two leg stance. So it goes like bottom up. But then if you get nervous and anxious, there's an increased uncertainty. So anxiety disorders actually affect our standing.

We are getting ready to, to flee or to freeze. And this is context dependent. I know that most of you have haven't realized this, so it could also be top down from higher areas in the brain to lower areas. And just looking at this, I can understand with my intellect that standing here is absolutely as safe as standing on the ground. But the risk, the threat from this cliff will totally change my perception and it will change the way I stand.

And actually I wouldn't go that close to the cliff, I would stand over here. But I can understand that with my mind, but not with my body. And I think that many of the patients that we see with the PPPD actually feel like this, just standing on the floor, but away from anywhere to hold on to. And also I do believe that this is kind of a built in anxiety problem. You know that all animals, including ourselves, we, we are destined to, if we threaten, we can run away as quick as we can, like in a panic attack.

But we can also have this freezing response where you just become absolutely still and please don't find me. And that is our body telling us that okay, you're very decent now you should lie down or someone, someone will come and eat you. So I think this is what is what it's all about. It's inherent in our bodies. Our bodies are trying to protect us.

So both anxiety and depression disorders can lead to unsteadiness and then the opposite way unsteadiness can lead to anxiety and depression. And then we have like a vicious circle. So it really doesn't matter where it all starts. We have to treat the anxiety and depression. Also just some figures

from the literature.

100 chronic disease patients in emergency departments in the United States. Majority vestibular disorders, but one fourth some kind of psychogenic. And this is from the Vertigo clinic in Munich. Mikael Stockman, Thomas brandt. More than 4,000 patients seen BPPV being the most common as we all know.

But phobic postural vertigo now called PPPD the second most common disorder in their TER clinic.

Now this is a very interesting observational study from Jeffrey Staub and Michael Ruckenstein 2003. They were studying 132 patients with psychogenic dizziness. And they really asked, okay, how did they end up with having psychogenic dizziness? And then it turned out that one third of the patients really never had any vertigo disorder. This was actually a primary anxiety disorder.

It was panic anxiety, plus minus agoraphobia. But they did not communicate anxiety, they communicated dizziness. One third of these patients had never had any problems with anxiety and depression. And they had a vertigo disorder, usually bppv, vestibular neuritis, obviously a migraine. And after having that, they started to have anxiety and agoraphobia.

So it really was a anxiety induced by a vestibular disorder. And in one third there were patients that had what, some kind of underlying psychiatric disorder, a bit nervous, but not diagnosed with any problem. And they suffer from a primary vertigo disorder that exacerbates this underlying psychiatric disorder. So actually, out of these 132 patients, 2/3 had actually autogenic anxiety. It started with a problem in the vestibular system, but it ended with anxiety.

Now we realized that these are the three most common causes of vertigo. Benign paroxysmal position and vertigo. Vestibular migraine, that is vertigo as a manifestation of migraine and persistent postural

perceptual distance, 3 PD. These three diagnoses might be almost 2/3 of all these patients. And the more specialized your clinic is, the more patients will function on disorders you will meet because the easier to diagnose where you can really find something like Meniere's disease or BPPV or vestibular neuritis, they will be diagnosed on a lower level on another clinic.

And if you really specialized like they are, for example at the Mayo Clinic in Rochester, they absolutely have a majority of functional disorders. In D.C. clinic, it might be maybe 50% of your patients having a functional disorder where really with all your testing you can, you can't find that anything is wrong.

Now let's go to the criteria. According to the Bahrani Society, in order to be diagnosed with PPPD or free pd, you must fulfill all criteria. So the first one is D.C. unsteady most days for more than three months. That is to satisfy the long standing problems. Of course you can suspect this before it's gone three months and start to maybe intervene.

But actually this is what is stated in the criteria. Long duration hours, but might vary in intensity during the day and between days must not necessarily be there all the time. These symptoms are there without any specific provocation, but they are worsened by standing and walking slowly. Can be very cumbersome for the patient to just stand still. But running.

I've had patients that felt it very, very hard to walk to the local supermarkets. To to get their groceries, but they could still run a full marathon without any problems.

Active or and passive movements I.e. riding a car, riding in a bus, or passively being pushed in a crowd or moving your hand and exposure to moving visual stimuli and complex visual surroundings. And that could be supermarkets in the big cities with all these screens that are moving and advertisement and stuff complex visual environments. I mean floors with black and white tiles, walls with lots of different patterns, etc.

These symptoms are then if you ask the patients, almost always preceding by something that has given rise to vertigo or unsteadiness. And usually that's an acute episodic or chronic vestibular disorder or another medical condition or an emotional problem. Quite common is that the patient has had a fall and maybe had had a wrist fracture and they don't want to fall again to have a hip fracture and they started with this problem.

If there is a acute episodic vertical problem. This initial vertigo then gradually goes over and becomes these PPPD symptom. Very typical. Typical thing is a patient has a vestibular neuritis, he's getting well from that. Well two months later suffering from BPPV which is not that uncommon after vestibular neuritis you treat it and then a couple of weeks later the patient comes back and are totally frustrated by their feeling dizzy all the time.

And this is the gradual onset that it follows another disorder. And of course this should give rise to a significant suffering or decreased function. That's why they are seeking our help and then not better explained by another condition. So there we have the criteria that should be fulfilled. So then we have to ask them these questions about standing, walking, scrolling on computers, visual etc.

So the quality of the dizziness is like disturbed spatial orientation, unsteadiness, usually standing still or walking slowly running is usually better. Illusions of rocking, swaying, non rotatory vertigo. It should be present at least 50% of the days. Usually if you ask the patient okay, are you worse in the morning or in the evening? Usually worsenings during the day, getting worse in the afternoon while for example in BPPV they are worse in the morning and getting better during the day.

They can have short attacks like a blink short of a second with they had to maybe hold on to something and just sit down with increasing symptoms without this having to be something else. And exacerbating factors is that very sensitive person can feel these symptoms sitting and it can also feel a rocking

sensation lying in the bed, active motion, own body movements, moving your hand, passive motion, riding in a car In a bus, in an elevator, or being pushed in a crowd. And these visual stimuli are like in traffic, moving cars, big screens, pattern on walls and floors, or small close objects, like reading, scrolling on a computer, working on a computer. Usually the preceding condition is a vestibular disorder. Very commonly it's vestibular migraine.

It could be a psychological psychiatric, like a panic attack, starting it all. That's more common in the younger patients between 20 and 30 that it's a primary psychiatric problem. But in the middle aged persons it's usually vestibular disorder. Could be an anxiety disorder, could be some kind of autonomic disorder with vasovagal fainting for example, or some under medical condition. But you can't always find something starting at all.

And the most important thing is this condition can coexist with other disorders. So you can for example, have Meniere's disease, but if you fulfill the criteria for pppd, you have PPPD as well. And then you have to make out is it the Meniere's disease or the PPPD that gives you the most problems.

So this is where we're standing at the time being. This is now being studied in several places around the world with an increased number of papers coming out. And maybe this is not just one disorder, could be several disorders. Maybe there are subgroups with different, different specific hallmarks here. So how do we make this diagnosis?

Well, there are no specific findings in vestibular testing, but we have to rule out other vestibular disorders by having vestibular tests telling, for example, that you don't have a bilateral vestibular failure. There are no specific laboratory findings, but I mean we have to look at for example, blood tests so we don't have anemia or anything else. And there are no specific radiological findings, but we still have to do some kind of neuro radiology to say, well, it looks okay. Otherwise we can't say with certainty that everything is looking fine. But if the patient has a history that fulfills criteria A to E or A to D really well,

they have pppd.

And it's not a diagnosis of exclusion, it's actually a diagnosis of inclusion.

So it might coexist with e.g. menial disease or vestibular migraine, not uncommon.

I will just briefly talk about treatments because there are no 100% control. There are really no real good placebo controlled, controlled studies on any treatment. But usually a thorough examination, excluding lots of different, more or less nasty stuff, and then explaining the mechanism that maybe that vertigo attack you had three months ago, that Was very scary, wasn't it? Yes. And now your body does not want to feel that again and it tries to protect you.

Because if you were a gas sell out on the savannah having dizziness, you will be an easy target. So now your body is telling yourself to stay at home to protect you. And what you have to do is you must overrule this by on yourself or together with others actively seeking out these situations and places that you are feeling unsafe and you must stay there. And then your body, body will realize that nothing terrible will happen and this anxiety will go away and you will feel good and good. Vestibular rehabilitants, physiotherapists are good at doing this treatment, but there are no clear cut, ready made advices how to do it.

So physiotherapy, vestibular rehabilitation, cognitive behavioral therapy, and me being a medical doctor, we know that SSRIs are very often a very effective way to treat. And we can say that at least two thirds of these patients are feeling either much better or totally symptom free on SSRIs. But they are sensitive to the side effects and you have to be really careful starting with the low doses and slowly, slowly increase that. And it has been described that over time they usually get better, but it can take a long time.

So excuse me, how do we find these patients? Well, the first thing is what we're doing now. We are educating ourselves to get knowledge about this extreme importance of anxiety and depression for balance disorders. So we know about this and we know the key features for how to find them. And then I suggest that anyone who sees these patients find a easy way to measure the levels of depression anxiety.

And we can do that very easily by the hospital Anxiety and Depression scale, which has been around for more than 40 years.

It's translated into several languages. It's really easy to use. It's 14 questionnaires with four alternatives. You can get zero to three points per question. Seven questions are anxiety related, so you can get 21, zero to 21 points indicating anxiety.

And seven questions are depression related. So you can get zero to 25, one points on depression. And it really takes less than five minutes for the patient to fill out and it takes one minute for you to score. And then we end up with if you're in between 8 and 11 points, it's mild anxiety depression, like a borderline. But if you have 11 points or more on one of these subscales, really it clearly indicates that this is a case of anxiety or depression or both.

So if you run A balance clinic, wherever you are, start using these scales. We let all patients that comes to our balance clinic fill out this hospital anxiety and depression scale and the Dizziness Handicap Inventory in order to get this very important question related. And if you get high ratings on this, you can really start to discuss with the patient how are you really feeling? How are you. Because it's very seldom that you see on a patient on their language, body language that they are anxious or depressed.

But if you get this kind of statistic, you can really start talking to them and realize and then they will maybe open up to you.

These are just some free that you can find free on the net. It's the diagnostic criteria. If you go for STAB and pppd, you'll find it. This is an observational study on effects of vestibular rehabilitation in pppd quite recent. And this is an article looking at serotonin within the vestibular system, supporting the use of these medications in treatment of vestibular disorders.

So these are three quite recent articles that I suggest you download and read. And with that I think I'm ready to take some questions. Thank you for listening to me.

Thank you. Thank you very much, Dr. Calber for these insightful and clinically valuable presentation. Amazing. Let me say that you, your experience and clarity have helped everybody, have helped the audience better understand pppd, a very relevant condition in the field of chronic dizziness and vestibular disorder. Dr. Caldwell, from the question and answered box, I can see in this moment five questions for you.

May you be so kind to click on the queue and our tag and read loud the questions. Thank you so much. Questions and answers. Why should I go then? I. I'm.

I'm looking at the chat, but I can't find. Yes, okay. Okay. Dr. Cabot, if you want, I can, I can read now. Now I'm.

I'm getting there. Yes, okay. Definitely. Thank you so much. Okay.

And go from this from the top here. Sure. So various triggers of PPPD are interesting. Do I consider Malde debarquemont as fitting with the PPPD diagnosis with an onset trigger of passive motion? They are related.

I say Malde de Barquemont is I think an all disorder in its. In its own right. But I do believe that they have quite a lot in common. It. It's kind of a something that just goes on and on and on and you really can't explain it otherwise.

I'm. I'm absolutely more concerned about the use of that. You can get Maldives without a spontaneous Malde Debarkment. I Mean that doesn't fit with, with how the disorder starts. You need to have a travel, you need to be on, on a long term boat ride in order to get that passive motion all the time.

But maybe there are some very similar neurophysiological reasons getting into this.

Okay, We see here.

Yes, we presented, we put in in tatympanic, not streptomycin, but we injected intra tympanic lidocaine into my ears on both sides intra tympanically and closed the vestibular organs. And I was very sick, but I didn't have any nystagmus.

Okay. Sometimes patients say that they feel spinning in their head and some say it's the room spinning. Does this give us a clue in diagnosis?

I would say if someone really can say that the room was spinning from left to right, I do believe that they must have had nystagmus and spinning within the head. I would say it's kind of called internal vertigo. Internal versus external vertigo. But really not. I mean to.

To use patient's description or what they are feeling are not very good. You need to have look at into triggers, etc. Now let's see. Should I apply had questionnaire after three months of duration or at the first visit? I mean we use it all the time.

Doesn't matter if any patient, any patient if it BPP many years. We always use the hand questionnaire.

Now let's see. Is there a requirement for long term monitoring and treatment for pppd? Yes, I do believe you have to really follow the patients a long time in order to make it good.

Is central compensation limited if patients are on antidepressant during rehab? No, we don't believe that SSRIs interfere with vestibular rehabilitation at all.

And please expand on the differential diagnosis between vestibular migraine and pppd. Well, the basic thing is that PPPD is a separate disorder. Vestibular migraine is a vestibular part of migraine where the migraine disorder expresses itself not so much as headache but as dissonance and vertigo. But they are really sometimes very hard to say whether it's vestibular migraine or pppd. They really belong together.

Okay, now let's see.

Similar diagnostic criteria between visual vertigo and pppd.

How to differentiate them? Yes, visual vertigo I consider more these who have not much problem just standing anywhere but really troubled by visual moving surroundings and not this specific very typical PPPD that they feel just standing still is very, very. They are not feeling well with that.

Is there a DHI Score we can look for that may signify possible free PD.

Not really. I say. Usually I say the higher DHI scores you get, if you're up in 70, 80, 90, the patient usually have a secondary psychiatric problem.

I just go on here.

In severe stubborn cases where PPD is ongoing, patient switched from SSRIs, SNRIs, SSRIs, again. Vestibular relipedia. Symptoms improved and not resolved. Does amitriptyline have a role in research? It can have.

Especially in patients that you suspect on the same type have vestibular migraine. I use amitriptyline sometimes. It works very well.

Okay. How would you recommend us audiologists to handle psychogenic symptoms? I don't think we can tell the patient to get psychological help. How can we better put this? Well, I guess that you need to have some medical doctor to cooperate with.

And you can tell them if you use these hospital anxiety scales, for example, you can communicate to the medical doctors or to the general physician that the questionnaire results here tells me that there might be something that has to do with anxiety or depression that I think you should address as well.

Yes, someone here. I found very few randomized control trials on both ssri, CBT and vestibular rehab when it comes to pppd. Yes, you're absolutely true. How convinced are we about these treatments? Well, we are very low down.

I mean, it's only what's called. That's the. The worst kind of evidence. It's me telling you.

And the problem is that we have tried several times to get funding from, for example, companies that. That make SSRIs, and they were totally uninterested in doing this. But I know the rumors had gotten me that Jeffrey Staub at Mayo Clinic that they are maybe starting a academic. That is a randomized control study without any findings from pharmaceutical companies. But this is an area that needs to be

addressed.

Well, h. I'm official. Do you have any tips to work with pppd? I do believe that maybe that is just trying to convince them that their balance system is working perfect perfectly fine with exercises that really shows them that I'm not falling, I can keep my balance. And really trying to get them less concerned by the balance. It could be by distracting them by having balance exercise.

Really not. Not balance, not training balance, but actually getting them to. To use the balance as. As it is intended. And that is totally subconsciously neuroplasticity training with pppd.

I. Sorry, I can't. I don't know what neuroplasticity training is, so.

Well, how should we call DCness like PPD if it has not yet been three months since the onset? Well, that is, we can call it PPPD in evolution maybe. And the recovery period in terms of time? Well, the problem is that I, I do believe that most of these patients, they have been going from doctor to doctor in different specialties telling there's nothing wrong with you and usually they have had this problem for a long time. And I do believe that the longer you've had a problem, the harder it is to treat it.

But sometimes I've had patients coming to me doing all kinds of treatment and been off work for one or two years and I say, well, the easy way is to try SSRIs. And I say, yeah, let's start that. And then they come back within a month and say great treatment, I'm back to work tomorrow.

Medical legal implications I after an accident. Well, I do believe that quite a lot of patients with problems, for example after a fall or after minor head trauma, that they fit within this area and it's extremely hard to, to prove cause effect in this.

Now this is an interesting how often PPPD develops after bilateral vestibulopathy. And actually I do believe that these are two separate that bilateral vestibulopathy don't, don't, don't behave in the same way. And I do believe that Professor Thomas Brandt has written a bit about this, that if you lose all your vestibular function, there is a drive from the vestibular system to your brain that you need to really have these problems with pppd. And that doesn't really happen in bilateral vestibulopathy. That's another disorder.

Okay. We have professional conference where a wearable magnetic device which vibrated at a particular frequency was offered as a treatment for vertiginous migraine and other vestibular disorders. What can I say about this option? I'm not familiar with that. I know that are stuff coming out now, especially for patients with bilateral vestibular loss, that tries to use another sensory system that is vibration or sensation, electric stimulation of the tongue, trying to give an extra input, telling the patient of his or her movement in space.

But this specific. I think it might be something similar and I think that's. I'm come to the the end of the question and I hope to have this opportunity to talk and it's really a very interesting area to work within and you can do a lot, but still we have not much evidence on how we should treat them. Still. Fantastic.

Thank you so much, Dr. Kalbar. And so after 20 questions. I think that the conclusion is here. So thank you all for attending. And Dr. Calver, we are truly grateful for your contribution to Inventis academia.

And let me say that it has been a real privilege to host you once again. So let me say, see you in September for your next webinar with us. Okay. Have a nice summer here in Europe. Or winter, if you're on the other side, of course.

Before we close, I would like to remind everyone to stay up to date with our upcoming Academia event by visiting the Academia section on the Inventis website. Thank you once again for joining us. Thank

you, Dr. Kalberg. And we look forward to welcoming you to our future Academia webinar. Bye for now.

Thank you.