

Talking Sleep Season 4

Episode 11

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Drs. Donna Arand and David Davila, Guests

Episode Transcript

DR. KHOSLA: Thank you for joining us for Talking Sleep, a podcast of the American Academy of Sleep Medicine. I'm your host, Dr. Seema Khosla, medical director of the North Dakota Center for Sleep in Fargo.

You know, many of our patients who wind up having sleep problems really don't know that they have a sleep disorder. It's important to use reliable testing protocols to ensure accurate diagnosis and to get patients appropriate treatment to improve their sleep quality and overall health.

The AASM recently published updated protocols for administering the multiple sleep latency test and the maintenance of wakefulness test. With us today are two members of the task force that develop the guidance. Dr. Donna Arand and is an experimental psychologist in the department of neurology at the Wright State University Boonshoft School of Medicine. And Dr. David Davila is director of the sleep center at Central Arkansas Veterans Health Care System in Little Rock. Thank you both for joining us today.

DR. DONNA ARAND: It's good to be here.

DR. KHOSLA: So I thought we could start off with just a brief discussion on the difference between measuring sleepiness versus alertness. Donna, how do you think about this?

DR. ARAND: Well, sleepiness and alertness are not on a continuum. Sleepiness can be increasing across the day, but people are relatively able to function fine as the sleepiness increases. So these are separate characteristics. And so they are measured differently, and they're also affected differently by internal and external factors. For the MSLT, internal factors don't really play a strong role because people can't make themselves fall asleep.

On the other hand, for the MWT, people can engage in lots of behaviors and external factors that can help them stay awake, like being in a noisy room, turning up music, being around people, engaging in social activities. So these are all things that are considered when we want to measure either sleepiness or alertness. And these are factors that have played into the protocols for the tests we're going to discuss.

DR. KHOSLA: So why did the AASM decide to put out new guidance?

DR. ARAND: Well, the AASM updates their guidelines when there is new information in the field or at a minimum, every ten years. And the 2005 MSLT paper had reached its ten year mark in 2015 when our task force was formed. And David and I were both on the original 2005 task force as well as this one.

DR. KHOSLA: So, Donna, you said that the paper was out in 2005, right. Which means it sort of should have been revised 2015 ish. But this one came out in 2021. So why did it take so long?

DR. ARAND: Well, the initial task force, we had one or two people dropped out so that it was delayed because it was then reconstituted. And also, once we started working on the paper, it was supposed to be an evidence-based paper. However, when we did the systematic review, we didn't find any studies that really met our criteria that we could use.

So then we had to go back to the board and ask them if this could be a consensus paper. The board did agree that we could make it a consensus paper, and that was another restart for the paper. And then when you have monthly meetings among a group of six experts who are also working and, you know, and you're trying to examine and turn over every little stone, there was no topic, there was no word to trivial that we didn't discuss sometimes many, many times over the years. And on your monthly one hour call, when you're trying to get consensus on so many variables, it just takes time. And then, of course, at the end there's a lot of reviews and editorial comments that come back that we have to have to work on as a group. And so it did take more time than we had anticipated. But I think the end product is pretty good.

DR. KHOSLA: You know, somebody once told me that if you have five scientists in a room, you have six opinions.

So tell me why the focus of this paper was it was a lot more narrow compared to the original paper.

DR. ARAND: Yes, it wa. The 2005 original paper had a really broad focus. It covered everything. It covered the history of the tests, definitions, the indications for the test. And it also included a systematic review and meta-analysis for normative data for both tests. In contrast, the current paper focused only on protocols and procedures for the MSLT and MWT, which were also included in the 2005 paper but this was going to be an update.

DR. KHOSLA: That makes sense. So, David, what were the goals and in updating the protocols and procedures?

DR. DAVID DAVILA: Right. Well, I think many of us on the task force came in feeling as though there were different variations on the methods being used out there in the field and that even within facilities there were variations in methodologies being used. So we felt like there were a lot of areas that we could tighten up and clarify and help improve consistency between facilities and then even to harmonize some of the methods between the MSLT and MWT where that was appropriate. So there was a lot of targets on our list for improving the protocols.

DR. KHOSLA: I really love that you looked at everything in such detail, like you mentioned, Donna, that there wasn't even a word that went by without significant scrutiny. And so I imagine that given the time between the first paper and the second paper, that there were a lot of challenges that arose. So what were some of the challenges you experienced when you tried to address these in this updated protocol?

DR. DAVILA: Well, there were several things, I think, that we realized from the beginning. And one was that we needed to buff up, if you will, the patient preparation part of it to have clinicians really work on getting the patients ready for these tests. And then also on the other end, we felt like there was a big need for better documentation of what kind of schedules of patients were on medication and whatnot.

And so in between that, of course, there were a lot of protocol specific changes that we came on. But as far as controversies go, the patient preparation section brought out a few right away. So one was how much sleep should we require of patients to be getting at home before coming in for these tests? And then on the PSG, if one is done for the MSLT but optionally with the MWT. And during the time of our discussion and of course the AASM and National Sleep Foundation came out with sleep time recommendations of 7 hours or more. And so we had to think about that pretty hard in terms of incorporating that into our new protocol recommendations. And there was a concern that certain patient groups might have a hard time reaching that. So we ended up recommending 7 hours of recording time, at least in the lab and at home, but would accept at least 6 hours of total sleep time on the PSG.

DR. KHOSLA: And I really wondered about that when that came out, because I thought I was like, well, you know what? How would I do after 6 hours of sleep? I might hit a SOREM, you know. And so I wondered how you reconcile that with on one hand, right, all the experts are saying we need 7 to 9 hours. But then when we're doing the study, our patients don't get that 7 to 9 hours, usually before their MSLT.

DR. DAVILA: Well, part of it was just making sure that they were giving themselves the opportunity to sleep at least 7 hours, which is an eye opening finding for some patients and clinicians, even. You know, it was good that we had that standard to think about and to try to attain. Um, but you know, in the end when it comes down to counting minutes of total sleep time, it can be a challenge.

Um, so the, the next related part to that, that came out pretty quickly was, well, how do we, how do we measure this and what do we expect of the clinicians and, and the patients to do? Uh, and that's when we had this discussion about sleep diaries, which we now call them, as opposed to logs and using actigraphy. We, you know, had considered the one week duration, but many on the task force felt like two weeks was needed because of all the circadian changes through weekends in a lot of our patients. So we ended up really highly recommending two weeks of diaries at least, and then actigraphy if available. So that was a little bit of an expansion of our guidelines.

And then just as another related part of that, we were starting to recognize in the preparation, you know, people being on breathing treatments of various sorts. And we knew that you could get time in bed or time on machines on the PAP machines downloads. And we thought that was an important thing to gather, to look at patients sleep schedules prior to testing.

DR. KHOSLA: So I love that. I love that you're considering and more formalizing looking at that download to obtain that information.

DR. ARAND: And can I add something to what David said? I agree with everything he said, but in terms of the 7 to 9 hours of recommended sleep, that recommendation is for people who have normal sleep or can get normal sleep. And narcolepsy patients don't have normal sleep. Their sleep is often short, fragmented and disrupted, and it's very difficult for them to get 7 hours of sleep during the night. So we maintain the six hour minimum sleep requirement, which was in the 2005 paper, I believe, but this is a minimum and we felt we needed to provide some guidance to help prevent sleep deprivation from really altering the results. So I think you have to remember these individuals being tested have a high probability of having narcolepsy. So we shouldn't be really concerned so much about the normal sleep requirements for normal sleepers. I just don't think that's the group you're dealing with in narcolepsy patients.

And the other thing about the two week sleep log that, you know, I think that's important to let everyone know we talked about this probably monthly for the last two years in our calls. And, you know, we looked at every aspect of this and any of us could discuss the, you know, the advantages of one versus the other. But, you know, I think we went with the two weeks because, first of all, you do get two weekends in there, as we said, and that's when you get a lot of variability. But also, you know, with the pandemic, people have gotten into hybrid models of work schedules. So one week may not be the same as the next week. There's quite a there can be quite a bit of variability there as well. So we really felt two weeks was really a better estimate.

DR. KHOSLA: That's a really good point. So, David, tell me, what were the specific procedural or technical changes that were made in this iteration?

DR. DAVILA: Well, as I said earlier, that patient prep for getting logs and getting actigraphy prior to testing was emphasized more and meaning those minimums that we just discussed. And then also ensuring that any patients with disordered breathing were adequately treated for long enough. And so all of those were included in the discussion and the boxes of protocols.

We reiterated the business about no split nights before MSLT, getting back to the patients being on a stable, you know, treatment pattern for weeks prior or non-PAP treatments, dental devices, for instance, or even maybe with the new pacer. Then the other thing that we discussed quite at length was medication and substances and being mindful of the alerting and sedating and REM modulating meds and trying to stabilize those as much as possible wean some and abstain from others. Those are emphasized I think a bit more. And we gave an example list in the paper of certain common meds to be aware of. Um, so those were just some of the early changes.

DR. ARAND: And we, we did include some technical changes with adding the frontal leads for the EEG in both tests and stopping all activity or stimulating activities 30 minutes before each nap or wake trial. Previously, some had been 15 minutes termination before the test and others were 30 and we just made them all 30 for consistency and we also specifically outlined the use of devices.

DR. KHOSLA: Yes, yes, yes.

DR. ARAND: Yes, yes, yes, yeah. The peoples phones going off during your nap test. So we did address that, and we also indicated that sitting up in a chair for the MWT rather than just sitting in bed was an option since the survey we had done when we were reviewing information indicated that some labs or at least a few labs were allowing people to sit up in a recliner chair to do the MWT.

DR. DAVILA: There are there are a few other things, clarification that we made. For the clinicians to remember to note the REM latency on the PSG since it can be used to add up the SOREMs. And for using PAP and other breathing treatments during the naps on MSLT. I know that had been debated in the past. And then another technical area that we clarified a bit was on the audiovisual monitoring. We recommended that it be done all day, even between the naps, but the actual recording or saving of it would be up to the discretion of the facility or the clinician. And that's because interesting things can happen, of course, between naps. I remember vividly when I was a fellow recording not only on the, the VHS tape, which dates me, also on the paper PSG system, recording a patient having cataplexy and so we actually were able to run the study between naps and capture someone with, you know, absent EMG tone even though they were awake and, and I've seen that on tape. So that was a little bit of a clarification.

And then finally, some things about drug screens. We pretty much came down the same area at the discretion of the clinicians because we didn't want to have to add to expense if it wasn't necessary. But we did come across quite a few papers that had shown a surprising positivity rate on drug screens. And I think that if possible, it should be done, especially in this era of medical marijuana and recreational marijuana approval and all other. So those were some things that we added. And then on the reporting, the documentation of the patient's med use in the last 24 hours prior to testing any changes they might have made in the past week. And you know, noting if they had diaries, actigraphy, all these things seem ordinary, but they're often not documented in outside reports and makes it very difficult for someone reviewing someone's past history to, uh, to know.

DR. KHOSLA: Do you know what I find fascinating? And when you say drug positivity, I'm assuming you mean cannabis?

DR. DAVILA: Among others.

DR. KHOSLA: Among others. At APSS a few years ago, we heard a sleep researcher talk about the REM suppressant effects of cannabis. And so then, of course, you know, you start thinking about, well, wow, how does this impact our MSLT?

DR. DAVILA: Exactly. The problem with marijuana and cannabinoids and whatnot, is mostly the THC, it's a complicated topic whether the patients are using acutely, chronically, whether it's stimulating or sedating. It's just all over the board at this point. We really need some more focused studies on that.

DR. KHOSLA: Let's take a short break. And when we come back, we'll talk more about using this guidance to conduct MSLT and MWT testing. You're listening to Talking Sleep from the American Academy of Sleep Medicine.

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DR. KHOSLA: Welcome back to Talking Sleep. We're chatting with Dr. Donna Arand and Dr. David Davila about recent updates to the AASM guidance for administering the MSLT and MWT.

So Donna, this is something that I think in our lab, you know, this comes up at least maybe once a year because I think there's some confusion, right? So help me understand better this idea of when we determine sleep onset latency and when our technologist can wake the patient up.

DR. ARAND: Well, sleep latency is always determined based on the start of the test to the first epoch of any stage of sleep. And that's true for both tests. However, the MSLT is terminated based on time, either after 15 minutes after the onset of sleep or after 20 minutes if no sleep occurs. The MWT is terminated after three consecutive epochs of stage one or one epoch of any stage of sleep.

Now it can be confusing when you talk about three consecutive epochs of stage one as only the termination time. That does not necessarily correlate exactly with sleep onset. The issue here is that when you're looking at an ongoing 15 minute scroll of a sleep study, it can be very difficult to pick out the first epoch of wake with just 16 seconds of sleep time.

So if you would wake the person up after that, after calling that first epoch of stage one, that can be difficult to determine. And the sleep specialist may come along and look at that that study and say, no, I don't think that was stage one yet. But yet you've now terminated the study. So you've lost that nap or that wake trial.

So in order to prevent that kind of thing from happening, the termination of the MWT is after at least three consecutive epochs of stage one or any other stage of sleep. So that pretty much guarantees that the sleep specialist will come along and agree somewhere in there that stage one actually did occur even if it occurred two minutes before or minutes before in another epoch, at least you haven't lost that valuable data.

DR. KHOSLA: That's really important. David, you were talking earlier about the medications in that table, and I really appreciated that you guys delineated you know, you provided so much more detail about the medications and when to stop them. And I bet that generated a lot of conversation.

DR. DAVILA: Yes, it did. And it was something we had trouble deciding. Many medications have different half lives and there weren't a lot of direct studies on medications clarifying the magnitude of the changes you might expect in terms of sleep, initial sleep latency or REM pressure. And so we ended up sticking by the general two week washout for most meds, but others that have longer half lives, even longer periods should be considered. But, you know, we were faced with the reality of many patients not being able to get off their meds, their usual meds, such as antidepressants for that long period, and potentially getting into some serious mood situations. And so in the end, we had to give discretion to the clinicians working with the patients to come up with an acceptable pharmacologic pattern prior to testing and knowing that if their results were not informative, you know, REMs were not present when expected, then retesting would be needed or perhaps, you know, alternative testing such as hypocretin levels. So it's still an ongoing area of challenge.

DR. KHOSLA: So, Donna, you outlined, both of you outlined some of the changes. Do you think any of these changes in protocol increase the burden on either clinicians or patients?

DR. ARAND: Well, I think there is only a slight increased burden on the patients, but it's not much in that. And that is the result of increasing the length of sleep logs to two weeks rather than one week. But that's really not a big burden. And if actigraphy is used in addition, you can always fill in the blanks since clinicians rarely get complete data.

So I think the biggest burden for the patient is for two weeks of medication, as David was talking about. But that hasn't changed. And the clinician always has the option of making sure the patient remains on the medication and at a stable dose and doing the tests.

In terms of the sleep provider, then that's a very interesting question because it really, the new paper should not have changed the burden on the provider as everything we discussed should have already been being done all along and we were just providing more guidance. I think, you know, things like emphasizing the needed sleep time in the weeks leading up to the test and, you know, the patient's medications, those issues, you know, we tried to provide some guidance, but as David said, we still left it up to the clinician to evaluate things on a case by case basis and then use that information when they're interpreting the test.

DR. KHOSLA: So, Donna, I have a question and this is something my patients ask me. So in the real world, our patients do use caffeine and they do walk around to wake up. So why aren't these behaviors allowable on the MSLT or MWT?

DR. ARAND: Well, you're right, these are behaviors we all use normally every day to improve our functioning, to decrease our sleepiness or prop up or alertness. However, the MSLT and MWT are used to measure underlying sleepiness and alertness independent of external behavior. So the test protocols try to minimize all these factors so we get a standard measurement to compare to control patients or control individuals under the exact same conditions. And we can control those conditions. Some things we can't, but many of the extraneous things we can.

However, if the tests are being used to evaluate the effectiveness, effectiveness of treatment, then some things like caffeine or stimulants may be allowed. And additionally, the MWT can be more

flexible when it's used to evaluate alertness under a patient's typical behavior, and it's up to the clinician to decide what will be allowed, what the patient can do that day or leading up to that day in order to get a reasonable or valid view of their alertness on the MWT.

DR. KHOSLA: So it sounds like you guys did a really good job on this update, but I know you probably have ideas for what else needs to be done, you know, so, so tell me about what is still needed. Will there be more talk about wearables, for example?

DR. DAVILA: Yes, I would say again, similar to the sleep time recommendations that popped up during our tour of duty on this task force, the whole wearable scene kind of exploded and we were very interested, of course, in whether these were going to be usable or allowable. And because of the shortcomings of actigraphy and difficulties getting it. And we're still hopeful that sleep clinicians will be able to be knowledgeable about it in their patients and maybe be able to leverage on some of this more longitudinal data than just two weeks of logs and actigraphy to better understand their patients sleep patterns prior to the testing.

DR. KHOSLA: It's been really interesting for me. You know, we have a couple of actiwatches in my clinic and I'll often compare the actigraphy data to their wearable data. And so it's just been kind of interesting to me with this very, you know, small "n" to see how well they, you know, kind of sort of correlate in terms of helping me understand whether they are chronically sleep deprived or not or the circadian rhythm concerns.

So final thoughts, Donna, I'll let you go first.

DR. ARAND: Well, I'd like to say that, you know, if in terms of the MSLT and MWT we should look at age specific diagnostic criteria for the MSLT and larger normative data studies for the MWT for potential use in evaluating an individual's risk or in safety sensitive positions. And obviously, we need less expensive and time consuming tests for both daytime sleepiness and alertness.

And ideally, I think it would be nice if we had biomarkers for sleepiness. I mean, we have hypocretin for narcolepsy with cataplexy, but that's a very invasive test. So, you know, looking at other options would be so valuable to help everyone. And if something was developed that could be used in the field, that would be ideal.

DR. KHOSLA: Like a sleep breathalyzer. That would be amazing.

DR. ARAND: Exactly. Yeah.

DR. KHOSLA: David, how about you? Final thoughts? Yeah.

DR. DAVILA: And I would just echo that I found the shift work situation rather frustrating because we're still testing people, you know, during the day with the MSLT. And many of them, of course, are night shift workers or they may be rotating workers. And so it's it we found a few papers of trying to test people during their actual work shift times, but I think there needs to be more work done in that area as far as how to employ the MSLT to the timing of it and whatnot and the MWT. And of course anything simpler would be welcome.

DR. KHOSLA: No, you're right because sometimes you're faced with that conundrum, right? With a night shift worker who maintains that night shift on days off and then, you know, trying to really understand while can I do an MSLT at night, you know, what does this look like? Yeah, it's a challenge, isn't it?

DR. DAVILA: Well, one of the proudest MSLTs that I think I've done was, was a night shift worker in eastern Arkansas and had her do her night shift for a couple of weeks, then go on to days as her thing, her plan was her usual schedule, and to sleep at night at home and then come in for a daytime testing, you know, PSG and daytime testing with us. And she was profoundly sleepy, even being on sleeping at night at home, you know, for a week or two prior, just from the long term effects of that shift work. So we were lucky we were able to document, I think, a three minute mean sleep latency during the day.

DR. KHOSLA: Oh my gosh.

DR. DAVILA: Thankfully no REMs, but she fortunately showed out. But, you know, it makes you wonder if they're that sleepy during the day, you know, how sleepy could they be on the night shift?

DR. KHOSLA: Honestly. Well, thank you both for taking the time to talk to us and to explain these updates to us. Hopefully, the protocols will help standardized testing and reporting to further increase the value of MSLT and MWT results.

DR. KHOSLA: Thanks for listening to Talking Sleep, brought to you by the American Academy of Sleep Medicine. For more podcast episodes, please visit our website at aasm.org. You can also subscribe through your favorite podcast service. And if you enjoyed this episode, please take a moment to leave a rating or review. For more feedback or suggestions email us at podcast@aasm.org. I hope you'll join us again for more Talking Sleep. Until next time this is Seema Khosla, encouraging you to sleep well so you can live well.