Getting to the Heart of Sleep Health: The Cardiovascular Consequences of Inadequate Sleep

Marie-Pierre St-Onge (00:00):

Hello. It's my pleasure to discuss the cardiovascular consequences of inadequate sleep with my colleagues, Dr. Nancy Redeker, the Beatrice Springfield Professor and Director of the Yale School of Nursing Center for Biobehavioral Health Research and Dr. Young Kwon, Associate Professor of Medicine who practices both cardiology and sleep medicine at the University of Washington. I'm Dr. Marie-Pierre St-Onge, Associate Professor of Nutritional Medicine and Director of the Sleep Center of Excellence at Columbia University Irving Medical Center. Today, we will refer to each other by first name.

Marie-Pierre St-Onge (00:33):

I also would like to mention that these American Heart Association podcasts entitled Getting to the Heart of Sleep Health are made possible through sponsorship from Jazz Pharmaceuticals but it's important to note that all of the program material was developed independent of the sponsor.

Marie-Pierre St-Onge (00:48):

The American Academy of Sleep Medicine and the Sleep Research Society have recommended that adults get at least seven hours of sleep per night. So consequently, when we refer to short or insufficient sleep, we'll be describing patients who have obtained less than these seven hours of sleep. We'll also be talking about insomnia, a condition that's often equated with insufficient sleep but is a completely separate concept. In fact, insomnia is defined by three characteristics: difficulty falling asleep, difficulty staying asleep, or waking up too early in the morning and being unable to fall back asleep. Our patients may have one, two, or three of these symptoms, and they're often accompanied by dissatisfaction with sleep and patients reporting that they don't feel refreshed when they wake up in the morning. As I mentioned, while patients may perceive not getting adequate sleep, this may not be the case so it is possible to have insomnia with sufficient sleep and also insomnia with insufficient sleep. Chronic insomnia occurs when these symptoms occur multiple times per week for more than three months.

Marie-Pierre St-Onge (01:56):

We'll also cover obstructive sleep apnea, the cessation of breathing that occurs repeatedly throughout the night. Oftentimes patients become aware from their bed partners who are awakened by the loud snoring that accompanies sleep apnea. Patients may report feelings of sleepiness during the day from not achieving good quality sleep.

Marie-Pierre St-Onge (02:16):

And finally, shift work is another situation that influences sleep and is associated with both the mistiming of sleep and mistiming of meals, as well as reduced sleep duration. Shift workers are trying to sleep at a time that's unnatural and often don't get enough sleep during the day.

Marie-Pierre St-Onge (02:34):

So, Young, how often would you say you see these conditions in your clinic and what do you think the implications are for cardiovascular health?

Younghoon Kwon (02:42):

I'd like to say that the sleep problem we discussed, they are very common and patients with significant problem who we encounter represent just the tip of the iceberg. Many patients that we see in clinical practice do have sleep issues but they will not share that unless they are prompted to answer those. So unless we specifically ask them a question about their sleep, they typically will not voluntarily share that with us. Just like many other clinical conditions, it requires some more of a direct questions about the sleep. My experience as a cardiologist who happens to practice sleep medicine as well, may be a little bit biased and not represent other sleep clinicians or other physicians who take care of patients with their sleep issues. Having said that, given my number of years that I spent in clinical sleep medicine, I believe I can share some common insights into this question.

Younghoon Kwon (03:40):

As I mentioned, the sleep is something considered very private. More often than they will not come up front and share those problems with you. Now, as for me, I try to ask some couple questions that might lead our discussion to sleep issues. I can say that this is not always easy with the time constraints that we experience in the clinic, but as a sleep physician I routinely do this. My question that I typically ask them is about their overall perception of sleep. So for example, my first question is typically, are they satisfied with their sleep? And this usually set a tone for the rest of the discussion. But what I want to emphasize here is rarely would I hear that their sleep is excellent or without any problem. Most common response is that their sleep can be better.

Younghoon Kwon (04:34):

Of course, their perception of sleep is inherently tied to subjective perceptions of their physical and mental wellbeing. These are not separate issues. Expressing this a little bit differently, the more complex their health conditions are and the sicker they are, the more likely they would complain of poor sleep. This applies to typical patients that we see in sleep clinics as well. For example, when I see a patient who is referred by cardiac electrophysiology colleague who typically have atrial fibrillation or they may have frequent PVCs or PACs, premature beats and etcetera, these are patients who are relatively healthy. There are patients who have complex cardiovascular health conditions along with this as well, but a lot of patients that I see these are the cardiac problems that they have, but otherwise fairly healthy and with the little complaints. When I see these type of patients, most common response that I get is their sleep is usually okay. And more often than not, these are patients who are referred by my colleagues for sleep apnea screening.

Younghoon Kwon (05:46):

Some of them say their sleep is actually pretty good. Now, some of them are quite sick. For example, people with symptomatic heart failure, their stories are different. A lot of times they have lots of health issues partly related to their heart failure issues. And related to that, they have issues with falling asleep, maybe waking up too early and having difficulty going back to sleep, or they complain of trouble breathing in bed.

Younghoon Kwon (06:16):

Now, these are just the mere examples. There are many patients who might say that their legs are restless, their sleep cycles are totally out of sync. This list can go on and on once you open up this Pandora box. As I mentioned, the sleep needs to be analyzed in more of a multidimensional level. This is not a single dimension problem. It's highly complex and interrelated to psychosocial and their

environmental factors that they are in. This is not simple. Now, at this point, I'd like to turn the time to Nancy, who has extensive experience working with patients with heart failure in addressing their sleep problems. We'd like to ask her about how we might effectively bring up these complex sleep issues when we actually see patients and how it can be effectively addressed. Nancy, any two cents?

Nancy Redeker (07:11):

Thank you, Kwon. I think it's really important that we raise some important issues. When we think of sleep, it's very multi-dimensional. When we think of things that put us at risk for heart disease or for making heart disease worse once people have it, we think about short sleep. We think about irregularly timed sleep with the circadian day. We think about insomnia, which as Marie-Pierre correctly pointed out, it's very different than short sleep. But we also know that about half of patients with heart failure and other forms of ischemic disease, for example, may in fact have sleep disordered breathing and that's a really important focus of intervention. So in our work with heart [inaudible 00:07:51], just completing a large randomized controlled trial looking at the effects of treating insomnia in these patients, we did a little bit of interview work with them and the title of the paper is I'd Eat a Bucket of Nails if I Thought It Would Help Me Sleep.

Nancy Redeker (08:05):

Many patients think it's very important, and what they often tell us is that their healthcare providers don't ask about it. Now that's not just obviously cardiologists but other areas. So it's really important to patients, and we don't always think about that. But I think what's important is that in routine patient encounters that we ask, as Kwon said, about basic things and most of the time there's a very short period of time. It's not the major point of the interview, but we know it's very important to these patients. And so to simply ask about the quality of sleep, to ask about the length of sleep, how long do you generally sleep, and also to ask about things that keep people awake at night. As was pointed out for patients with heart disease, it could be pain, it could be dyspnea. It could even be comorbid conditions like arthritis and pain related to that. I think that's really important to incorporate that into your regular interact into your assessments.

Nancy Redeker (09:05):

The other thing that's hard... Some of us are specialists in sleep so this seems pretty straightforward to us. But the other thing that's important is to develop collaborative relationships with sleep programs so that when people present with problems like snoring or pauses during their sleep, which are clearly evidence of sleep apnea, that we have the referral networks to get these patients treated the other point... And as I mentioned, my work is with insomnia in heart disease. We've often thought about sleep apnea as one of the major contributors but, in fact, insomnia is something that is very common in the general population, at least 10% of the general population and probably 30% of people in primary care and I would bet even more in some of our cardiac patients. And that's a very different condition which can benefit through behavioral treatment.

Nancy Redeker (09:57):

So the average clinician is not necessarily well equipped to address that directly in a routine patient encounter but to think about networks in order to get people treated.

Younghoon Kwon (10:10):

I think as Nancy mentioned, asking some of the pertinent questions and listening to patients as to what they say, and even some documentation of these problems may be very helpful for other providers who may be able to help the patient. Of course, it's very challenging to go beyond that point. Trying to solve at a given time is extremely challenging. It may be appropriate to refer patients to a sleep medicine specialist, at times would be, I think, very appropriate.

Younghoon Kwon (10:42):

Now, if I may discuss this from a sleep clinician's perspectives, because I'm at the recipient end of actually seeing these patients who have been referred by others to address their other sleep issues. I have to say that, in practice, the majority of patients that we come across are those who have concerns about sleep disorder breathing, mainly obstructive sleep apnea. I would say the second common one would be difficulty with sleep, maybe not necessarily related to sleep apnea.

Younghoon Kwon (11:14):

As Nancy mentioned and also as Marie-Pierre mentioned, this is a complex issue. When the patient says they can't sleep well, it's hard to tease this out just by one test or just by seeing a patient. It may require some repetitive assessment along the time course to really try to pin down on what their problem is. Sometimes it's related to sleep apnea and sometimes they're all interrelated. So this is not a simple question, dealing with what the problem might be.

Younghoon Kwon (11:44):

Now, I have to admit that the field has put a lot of emphasis on the sleep apnea aspect of sleep management. Part of that is because sleep apnea is something that can be objectively diagnosed and also therapeutic options that are available out there such as C-PAP that you are well aware of. These facts have led to providers perhaps to focus more on this aspect, again, because this is something that we can more efficiently address. But the downside of this emphasis has been that we often have overlooked other sleep problems: insomnia, for example. These are big words: insomnia, circadian sleep disorders. These are big words that we hear about. Can we address them easily in sleep clinic or by sleep providers?

Younghoon Kwon (12:38):

The answer is not really. These are often the problem of complexity and something that can not be solved over a day. So what that means is that we have to work with patient to better figure out and also come up with a solution that might be helpful. I have to admit that even with the recognition of these problems that the fact that sleep is a heterogeneous condition, in our current sleep clinic setting sleep clinicians still face many challenges to address sleep issues that are beyond sleep disordered breathing.

Younghoon Kwon (13:14):

Nancy has mentioned this briefly, but for example, for insomnia, there are certain therapies that are out there that can be potentially very helpful. Of course, to diagnose insomnia, it may not be as simple. But as I mentioned, sleep providers may be better at trying to tease out what sleep problems they might have.

Younghoon Kwon (13:33):

But anyway, let's just talk about CBT really quick. In my practice, I'm so glad that I have some resource where I can refer my patient to arrange and get the adequate CBT therapy. But oftentimes this is not an easy task because they don't have that kind of amenities and such resource may not be easily available. And that may be reason why we have some options such as online CBTI that can be effective as well.

Younghoon Kwon (14:02):

Having said that, I think something that we always as a clinician have to remember is that oftentimes it's not that we have to solve their issues, but what it really takes is patient listening and acknowledging their problem with their sleep and, hopefully, that we come up with some words of encouragement that can make a real and meaningful differences. I think that little art is what can really make a difference in our sleep health as well.

Younghoon Kwon (14:32):

We often talk about sleep in a holistic manner and when we discuss that, we often forget about the importance of lifestyle and behavior factors in sleep as well. I'd like to turn time over to Marie-Pierre here, who has expertise in this area. Marie-Pierre, would you mind sharing some thoughts on this lifestyle and behavioral aspects of sleep?

Marie-Pierre St-Onge (14:58):

Sure, absolutely. I think we should think about diet, exercise, and sleep as the three pillars of health. All of them influence cardiovascular disease risk and risk management. Actually, I would even go so far as to say that good sleep is probably the basis for a healthy diet and active lifestyle. Poor sleep is associated with poor decision-making, and that can impact all facets of daily living including one's propensity to make healthful dietary choices and choosing exercise over the couch. So when we're trying to counsel our patients to lead a healthy lifestyle, including sleep is very important. And there's also much evidence that links poor sleep to overeating and increased desire and appetite for high fat and high sugar foods. So if you're trying to counsel your patients to follow a healthier diet, making sure that they get adequate sleep so they can make those healthy decisions is important. Right now there's also emerging evidence that dietary choices can also influence sleep quality. So, if you want your patients to improve their diet and exercise as part of their care, it's also very important to discuss their sleep.

Nancy Redeker (16:12):

I'd like to jump in on that. We were talking about insomnia and, yes, I agree with Kwon's point that cognitive behavioral therapy is sort of a standard treatment and often delivered by behavioral sleep specialists who are usually psychologists. Increasingly, there are shorter versions of that available, sometimes delivered by advanced practice nurses, sometimes by psychologists. And there are online programs. So I did want to emphasize that there are important venues to get treatment for that, but I also wanted to point out that there's some very simple things that people can do to improve their sleep that we often don't think about. When I've practiced in sleep, I've always been amazed at what the quantity of caffeine is that people consume. So if you're having problem with sleep, you shouldn't drink caffeine anytime after noontime. And for some people, caffeine has a very long half-life. I was shocked when I first started practicing at sleep and saw that people would drink liter bottles worth of cola and so forth.

Nancy Redeker (17:11):

The other couple of important things are screen time. Right now we're all a little bit anxious about what's going on in the world but even when we're not, the idea of sitting and looking at your iPad or looking at your phone or taking it to bed with you, that bright light is very alerting and keeps people awake. I think the other important message is that people should be doing something relaxing at bedtime. I have this personally bad habit of looking at my computer and doing work late into the night. And the problem is that wakes up your brain. It's very arousing.

Nancy Redeker (17:42):

So basic things like that, like a warm bath, like having a massage, listening to quiet music. You may have insomnia but you may not need a full-blown therapy of cognitive behavioral therapy. Some of those simple strategies may be enough to help. Again, I'm thinking of the fact that we're all now in pandemic time. There's all kinds of amazing things going on in the world about politics and all of that. And so ways to relieve the stress could also go a long way to improve our sleep.

Marie-Pierre St-Onge (18:15):

Those are great tips, Nancy. Young, do you have any tips? What do you use to unwind and make sure you get good sleep at night?

Younghoon Kwon (18:22):

No, I just want to echo first what Nancy just mentioned, that there are certainly many strategies that we can try before we reach out to pharmacotherapy and other options that may not be sustainable therapeutic options. As for me, this is an excellent question, because you would think that as a sleep provider that I have a perfect sleep. By no means. I struggle with sleep a lot of times. And I have to say that some of the interim sleep issues certainly have to do with sometimes stresses that you go through or environmental factors. Your kids make you up, your dogs bark, ambulance on the street. There are certainly things that you can try to modify if possible.

Younghoon Kwon (19:07):

Of course, there are things that you can't really address them, but there are certain things that are modifiable, and I think we should focus on those modifiable factors rather than focusing on non-modifiable factors. Let me say that first. And then, to me personally, what I find it very helpful in general is that days when I engage myself in moderate intensity physical exercise, I tend to sleep very well. You would think this is a magic. This is not. Marie-Pierre can probably explain this to you more in a scientifically rigorous way, but, yes, absolutely, physical activity is important. Of I give you a more particular prescription, it is at least moderately intense physical exercise if you're able to do so. And then, if you say, "I have a knee problem and all that, I really can't do all that", just try to increase physical activity within your capacity. That's going to be very helpful.

Younghoon Kwon (20:05):

Now mental task is very important. For example, try to read books, books that are good for you, that will give you some peace of your mind. And also maybe it challenges you in a way that you may have to exercise your brain. I think these mental activities are very helpful for your sleep.

Younghoon Kwon (20:57):

The last thing I want to share with you is that do not dwell on the 7-8 hour rule. Marie-Pierre rightly mentioned some definitions today, in which she mentioned seven hour somewhere. Seven, eight hours, definitely probably from a public health perspective and from a population perspective might be very reasonable, normal sleep hours as a target. I don't want you to stress yourself too much, to be stressed out by this 7-8 hour Golden Rule. How many patients do I see in practice that are stressed out because of this rule? The sleep requirement inherently varies from individuals to individuals. I'm okay sleeping six, seven hours in general. My wife, my better half, needs about eight, nine hours. That's pretty obvious. So there is certainly an individual difference. So I would say, do not be stressed out just because you didn't get eight hours of sleep or your Fitbit or your Apple watch tells you that you only slept six and a half hours.

Younghoon Kwon (22:05):

How about you Marie-Pierre? Do you have any magic tips?

Marie-Pierre St-Onge (22:08):

For me, consistency is key. I go to bed at the same time. I wake up at the same time, whether it's Monday or Friday or Saturday, Sunday. I think keeping stable routines is very important for healthy sleep and also not eating too close to bedtime. I advocate for stopping eating a few hours before bed times to improve sleep and also [inaudible 00:22:34]. Young, you were talking about getting exercise. For me, it's all about exercising in the morning, getting that natural light shining in and getting my exercise done before the workday. Those are my simple tips. And I think with that, we'd like to thank Jazz Pharmaceuticals for sponsoring today's podcast and thank you for your attention.