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Connecting the Dots: Sleep Apnea and Heart Disease

LIPID LUMINATIONS

You are listening to ReachMD, the channel for medical professionals.

This is Dr. Ian Goldberg, president of the National Lipid Association, and I would like to welcome you to Lipid Luminations hosted by Dr. Larry Kaskel, presented by the National Lipid Association.

Sleep apnea and its most common symptom snoring have long been viewed as a nuisance, but there is strong evidence that sleep apnea is not just annoying, but can actually increase one's risk of a cardiac event. Joining me today on Lipid Luminations is Dr. James Ehrlich. Dr. Ehrlich is currently the chief medical officer of Arthrotec Inc. He is an authority in the integration of imaging, physiologic and laboratory technologies with conventional office based assessment.

Dr. LARRY KASKEL:

James welcome back to Lipid Luminations.

Dr. JAMES EHRLICH:

My pleasure thank you.

Dr. LARRY KASKEL:

Well, do you think that sleep apnea might be one of the most underrated risk factors for developing heart disease?

Dr. JAMES EHRLICH:

I definitely do. Sleep apnea is conventionally detected when somebody has very obvious symptoms and most physicians will recognize those symptoms, but by far the highest burden of sleep apnea is an individual about whom sleep apnea would not be suspected and some very intriguing studies that have come out of the Technion Institute in Israel have shown that we really need to start to pay attention to much younger people. People 15 to 20 years younger that we have conventionally detected people sleep apnea because of the very high likelihood that they may be developing sleep disorders that will later lead to heart disease and contribute to metabolic syndrome.

Dr. LARRY KASKEL:

So, help me make the link how do you connect the 2. How do you go from having sleep apnea to developing heart disease? Is it a correlation or is there actually some cause-and-effect

Dr. JAMES EHRLICH:

Well, at the very least, there are very strong correlations. We have to think of sleep apnea differently. We should be thinking of it as an oxidative stress disorder. We should be thinking of it as an endothelial function disorder. We should think of it as a manifestation of sympathetic overactivity, and especially the lethal disorder that gives rise eventually or is associated strongly with heart attack, strokes, heart failure, arrhythmias, and hypertension. So, not only is it a leading cause of accidents and impairment of the quality of life, but years before an individual will show manifestations of either heart disease or sleep apnea. They have developed the *milieu* of pro-inflammatory biomarkers what will detect this and oxidative stress disorder and these things lead to cardiovascular disease at some point. So, I think we have to think of it a little bit differently.

Dr. LARRY KASKEL:

It sounds to me as you are talking about it that when I see someone with erectile dysfunction (ED), I think of ED (endothelial dysfunction) and once again this is another disease state that may be presenting and you should immediately think this is endothelial dysfunction and they are going to develop heart disease if they don't have it already.

Dr. JAMES EHRLICH:

Well, there is very, very high correlation between erectile dysfunction and endothelial dysfunction, but also erectile dysfunction could be a very prominent manifestation of obstructive sleep apnea, and so they all interact, so when we see a patient who we believe has metabolic syndrome, we should think of sleep apnea. When we see a diabetic, we should think of sleep apnea, and when we see certain types of dyslipidemia in obese people or people who are at risk, we should think of sleep apnea. We should also think of it in a younger person, perhaps a 30-year-old with a little bit hypertension and a big neck. We have examined 100s of former NFL football players who have large necks and were seen about 40% to 45% incidence in this group of sleep apnea defined as an apneic-hypopneic index greater than 5. So, sleep apnea comes in lot of shapes and sizes, but the research in Israel has shown that we can only improve mortality if we detect it early so that it is important to treat the 50-year-old or the 55-year-old who now has manifest sleep apnea and you will improve their quality of life. But you cannot show that you are actually improved their longevity. But if we detected in the 20s and 30s, often these are children of people who had sleep apnea, or they are, as I mentioned, young kids that are big that have hypertension. These are people who you will effect their longevity if we can detect it early.

Dr. LARRY KASKEL:

Do you see or do the studies play out a difference between the type of sleep apnea, central versus obstructive or they both leading down the same pathway.

Dr. JAMES EHRLICH:

Well, they do have different mechanisms, and in general, central sleep apnea appears to be somewhat different disorder, and so the strength between central sleep apnea and the associations with cardiovascular disease has not been worked out as well, but there appears to be an increased risk in either disorder, but obstructive sleep apnea by far and away is the commonly missed diagnosis.

If you have just tuned in, you are listening to Lipid Luminations. I am your host Dr. Larry Kaskel. My guest today is Dr. James Ehrlich, chief medical officer of Arthrotec and an authority in imaging physiologic and laboratory technologies, and we are talking about sleep apnea and the heart, which seems to be one of the most underrated risk factors for heart disease and it seems like we as physicians are no point intended a sleep at the wheel as to the effect of sleep apnea.

Dr. LARRY KASKEL:

Jim, you mentioned before that we should be looking at young hypertensives with thick necks, we should be looking at probably all our diabetics, all of our metabolic syndrome patients, is there someone that is going to slip through the cracks.

Dr. JAMES EHRLICH:

I think the lot of them will. I think, for example, there is a reason that there are now recommendations by sleep societies that anybody with diabetes should be tested for sleep apnea and anybody with sleep apnea should be tested for diabetes. So, we are seeing about a 40% relationship between metabolic syndrome, diabetes, and sleep apnea. So, very, very high prevalence of sleep apnea in certain disorders, certainly hypertensives. Many of us will see hypertensive and assume that it is essential hypertension, but you know, 57% of patients who have sleep apnea are with hypertension and up to 80% of patients with resistant hypertension have sleep apnea.

Dr. LARRY KASKEL:

So, we can potentially cure this people of their hypertension if we actually treat what is really their problem

Dr. JAMES EHRLICH:

That's right and it brings up a very important point that we do all sorts of things in secondary prevention. Somebody has had a heart attack. They have got about a 40% chance of having sleep apnea. We are not looking at our databases of patients who have had heart attacks wondering whether they have sleep apnea. But if we treat their sleep apnea, detected and treated, we are going to improve their ejection fraction, we are going to decrease their blood pressure, their CRP will come down nicely and so we should think of the treatment of sleep apnea whether it is CPAP or oral airways or surgery as potentially a modality in secondary prevention, and also primary prevention for those who have not had a manifest coronary event. But sleep disorders are relevant to arrhythmias, coronary disease, and its progression we are seeing patients with elevated subclinical atherosclerosis either carotid IMTs or coronary calcium, it is relevant to patients who have cardiomyopathy, heart failure, and studies published in <____> medicine shows that your stroke risk doubles with sleep apnea, so there is a very high cross correlation and these are common disorders where we are not necessarily thinking about sleep apnea for a primary care physician.

Dr. LARRY KASKEL:

Jim, what about young people that die of sudden cardiac death while they are sleeping. Do you think a large percentage of them are developing an arrhythmia not necessarily from an MI, but potentially from sleep apnea?

Dr. JAMES EHRLICH:

Well, there have been suggestions about. Now, the MIs that occur with people with sleep apnea occur in what is called the wee hours of the night and that is about 3 hours earlier, 3 or 4 in the morning you getting the MIs from sleep apnea. There is no question that probably an under appreciated aspect of young people dying from cardiovascular disease could be sleep apnea. We are talking about 100 of episodes of profound desaturation and potential for fatal arrhythmias occurring every night of their life.

Dr. LARRY KASKEL:

So, those are the wee hours and then there is another spike early in the morning, may be 6 or 7 a.m.

Dr. JAMES EHRLICH:

Right.

Dr. LARRY KASKEL:

And those are probably a vulnerable plaque rupturing and is that from the morning surge of adrenaline.

Dr. JAMES EHRLICH:

It could be. Remember what you notice is the key way of detecting or suspecting sleep apnea is that these people are non-dippers as far as their blood pressure, so we normally should see a difference in blood pressure at night and in the morning. We are not seeing that in the patients with sleep apnea and so they are non-dippers and this is a clue, and so I think you are right. It is just that we do know that the prevalence of ordinary coronary events is higher in the early hours, 7 to 9 in the morning. Monday morning being the most common morning for events and sometimes it is hard to distinguish obviously whether it is likely due to sleep apnea or to ruptured plaque.

Dr. LARRY KASKEL:

Jim, what are you recommending to guys like me that are primary care physicians. Should I be ordering sleep studies and pretty much everyone you said, every diabetic, every hypertensive, everyone who has a neck size bigger than X number of inches, anyone who is complaining of daytime sleepiness, all of the above.

Dr. JAMES EHRLICH:

Well, I think these people need to have be suspected as having sleep apnea, and I think realistically ones who have a very, very high likelihood because of symptoms probably deserve polysomnography or sleep lab experience, and the lesser likelihood what I call the intermediate risk people, people who have metabolic syndrome, people who have large necks and hypertension, younger people, family members of those with sleep apnea. It is hard to justify an expensive and burdensome use of sleep labs and so we have been very, very happy with using an ambulatory device developed in Israel that can, not holy detect sleep apnea, but quantify its severity.

Dr. LARRY KASKEL:

And that sounds like something I can give the patient to go home with.

Dr. JAMES EHRLICH:

Ya, that's right.

Dr. LARRY KASKEL:

What does that cost?

Dr. JAMES EHRLICH:

This device developed by Itamar Medical from Haifa area, Caesarea, that is called the Watch-Pat100.

Dr. LARRY KASKEL:

They also do the endothelial testing.

Dr. JAMES EHRLICH:

That's right they have a device called the Endo-Pat device that we have been very happy with and Watch-Pat100, the patient takes at

home 1 night, they apply to this to their arms. It is a device that downloads all information into a drive and then we send that information to a sleep specialist for interpretation. It calculates apneic-hypopneic index, oxygen desaturation index, percentage of REM sleep and oximetry and creates report that allows the sleep specialist to make an accurate determination of sleep apnea and quantify it and the patients love it.

Dr. LARRY KASKEL:

Sure.

Dr. JAMES EHRLICH:

We even do split night studies with it, and certainly to those patients who might have changed their titration of CPAP, they don't want to go back to sleep lab. We can use this device to reexamine people. Let's say 6 months or a year after their diagnosis and it's very cost effective. Insurance normally pays for it these days.

Dr. LARRY KASKEL:

Dr. James Ehrlich of Arthrotec. I cannot thank you enough for coming back on this show and enlightening me and I am going to take a very hard look at my patients and probably institute every thing you talked about today, so thank you very much.

Dr. JAMES EHRLICH:

Thank you my pleasure.

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