

Episode 6 : Insomnia

Hosts : Amelia, Krisha

Guest Speaker : Associate Prof. Dr. Rusdi bin Abd Rashid

Amelia : Welcome back to the last episode of the MMI Podcast! My name is Amelia, and along with my co-host Krisha, (Hi, hello! I'm Krisha!) we will be discussing an issue where everyone has probably encountered a lot especially during this pandemic. Before we start, Krisha, can I ask you a question?

Krisha : Yeah, go ahead!

Amelia : Have you ever had any troubles in trying to fall asleep? As in, no matter how much you toss and turn around, you are just unable to drift off to sleep?

Krisha : Frankly speaking, yes. And I'm sure that I am not the only one suffering from this problem.

Amelia : Well, we are in luck today! For those who are having similar issues, in this episode, we are glad to tell you that we have an expert who is a senior lecturer from University of Malaya, specializing in Psychological Medicine, with us today to further discuss on the topic : Insomnia. Let's welcome Prof Rusdi!

Krisha : Welcome Prof Rusdi! We are honoured to have you here to give us your insights on this matter.

Prof Rusdi : Yeah hi! Thank you for inviting me to this program.

Krisha : To kick off this session, we will first begin with something simple. Prof, can you please give us a brief introduction on sleep to our audiences by further elaborating on the physiology behind it?

Prof Rusdi : Okay. The definition of sleep, I think, is very important for us to know. Sleep is actually a state of loss of consciousness, whereby the individuals can wake up when given appropriate external stimuli. So, we have to differentiate sleep from the loss of consciousness, where it is not arousable. We know that people who sleep, especially when they are in their light sleep, or even in deep sleep, can be arousable when somebody tries to give them external stimuli to try to wake them up. Sleep is important because it's a physiological need. So, sleep functions as the restoration of the body, brain functions, repairing whatever the toxics occur; especially when we are working in the daytime, our body is under homeostasis, so we need some restoration of our body and also our brain functions. Sleep also **protects the circadian sleep cycle**. Without sleep, our sleep cycles will go haywire. We need sleep in order to protect this circadian rhythm while being awake and also asleep. And, we also need sleep also to **provide space for synthesis of hormones**, important hormones like growth hormones. In children, it's very important for this growth hormone to be secreted at regular intervals so they can actually grow well. For students, sleep is also **important for the consolidation of learning**. It allows whatever we learn during the daytime to be stored in the memory. So, this memory consolidation occurs during sleep. **Remodelling of the synaptic function** is another important aspect, especially among those who are in the learning period, like children and adolescents. And of course, another

important aspect, is that sleep **allows dreaming**. So, we normally dream. Dreams are also important to give us motivation for our lives. Without dreaming, sometimes life has no purposes. So these are basically the functions of sleep.

And, basically, for the sleep mechanism, the old theory said that sleep is actually a passive process, mediated by fatigue or what we call the Reticular Activating System, or, RAS, leading to the sleep states. But now, the recent theory suggested that sleep is actually an active process, **mediated by at least two mechanisms**. Number one is **serotonin serotonergic fibres** inhibit this RAS and therefore induce sleep states. Number two is **melatonin**, a hormone that is secreted by the pineal gland in the brain, at the posterior aspect of the brain during the darkness which inhibits this RAS and promotes sleep. So, sleep wakefulness rhythm is very important. A play of sleep and wakefulness alternate about once per day. In twenty-four hours, we have about eight hours of sleep and sixteen hours of awake. This rhythm is controlled by the biological clock or what we call the suprachiasmatic nuclei that is situated near the hypothalamus. The melatonin will be released by this pineal body in the brain. (I would like to show you the picture but very unfortunate I don't know how to actually share the slides here using this program, but it's okay)

Basically, **sleep has five stages**. Stage one, stage two and stage three, if you saw the EEG or the brainwave through the electroencephalogram, or EEG, you can see the most clinically important brainwave that can be shown through this EEG. Number one is the alpha wave. **Alpha wave** is basically the wave that will be shot up when we are awake, ranging from 8 to 13 Hertz. Then when we go into sleep, the stage one of sleep, we start to see the **beta wave**, greater than 13 Hertz. And when you proceed further to stage three, stage four, you can see **theta wave** which ranges from 3.5 to 7.5 Hertz. And lastly, the delta wave. At stage three and four, you will see the delta wave for 3 Hertz or less. And when you go into what we call **Rapid Eye Movement**, or RAM sleep, then you start to see alpha waves again. And you will be able to see the eyes' rapid movements, and this is why it's called Rapid Eye Movement. **This is the stage where people dream**. So, that is sleep.

How about insomnia? **Insomnia** is a sleep disorder characterized by **difficulty in falling asleep or maintenance of sleep**. People with insomnia will have difficulties in falling asleep, or what we call as increased sleep latency. Or, they have no problems in falling asleep, but they have problems in maintaining sleep, or what we call as intermittent awakening. And people with depression will have what we call as early morning awakening. You know, they wake up at four o'clock, or even at five o'clock in the morning. So this is basically what we see from people suffering from depression. And of course, when people don't get enough sleep during the night time, they may have some problems with daytime sleepiness, or they feel tired or have no energy upon waking up from their sleep.

Insomnia basically has a few types, we have what we call acute insomnia, chronic insomnia. **Acute insomnia** is a sleep problem less than three months; **chronic insomnia**, if you have problems in sleeping for more than three months. And we also have what we call comorbid insomnia. **Comorbid insomnia** is basically a sleep problem secondary to medical problems or psychological problems. And sometimes **we also classify sleep according to the onset**. **Onset insomnia**, or difficulty to initiate sleep or falling asleep, or **maintenance insomnia**: difficult to maintain the sleep, like the intermittent awakening just now. So this is basically how we classify sleep problems. (Do you have any other questions?)

Amelia : Yeah regarding the causes of sleep right, there have been cases where people of all ages have died due to sleep deprivation. What are the exact causes for sleep deprivation? Are there particular groups who are more at risk at getting insomnia?

Prof Rusdi : Normally, those with sleep deprivation occurs in adults like me and my colleagues. We normally have sleep deprivation **because of our job**, working as a doctor, especially those involved in the clinical work. We have on calls, and sometimes when we are on call, we are active and also passive, meaning that we don't have sleep in between. We are on call sometimes for three times a week, so this may affect and cause sleep deprivation. This happens because you can't sleep, because of your job commitment.

Or, it can also because of something else. For example, you know drug users? Especially youngsters nowadays they use drugs like what we call the **linen drug or stimulants, drugs like methamphetamine, shabu, ecstasy- we call this as stimulants**. So, stimulant drugs sometimes deprive sleep as well. It makes you feel the need to reduce the need to sleep. You don't sleep for three days, and because you didn't sleep for three days, your sleep becomes deprived. Your body eventually becomes fatigued and you can have episodes of what we call microsleep which is very very dangerous. If you're driving, and you have this microsleep, you can get into accidents, motor vehicle accidents; if you're running the machine, you can go into accidental injuries while working. So, it is very, very dangerous.

Krishna : Regarding the jetlag, flight attendants are more likely to experience it as a result of flying across different time zones, it is said that they would often take melatonin as a supplement to help in their sleep cycles. Is it harmful to take it as a supplement for a long time?

Prof Rusdi : I cannot answer this question, but what I can conclude is that when you take any medicines, even if it's herbs, **if it's produced according to FDA's approval, you can generally conclude that it is safe**. But herbs, as we all know, our parents or grandmothers sometimes use herbs, in the case of promoting sleep, we use **chamomile**. You know.. Chamomile tea? The use of chamomile tea without mixing with other products is generally safe. This is a natural product, and if a natural product is not added with steroids and so on, generally, you can conclude that it's safe. It does not cause any problems.

Same as **melatonin**, if you choose the product approved by the FDA, it is safe also. We have melatonin antidepressants : Valdoxan, Agomelatine, which are used not only as antidepressants. Sometimes we also **use this to promote sleep**, especially among those who are working in shifts, like stewardesses and doctors and so on. They are using this in order to promote sleep due to jetlags making them unable to sleep during working periods especially when they come back from their tasks. So, I think it's okay to use this, but provided that you need to be really careful. **If possible, you need to take medicines approved by the FDA rather than buying them from the counter without checking.**

Amelia : Okay, yeah prof. In the long run, it is undeniable that suffering from long-term insomnia is not beneficial for our bodies. What kind of mental illnesses will insomnia bring to us individuals?

Prof Rusdi : Mental illness... for example, **major depression, schizophrenia, bipolar**. These are the common mental illnesses that have what we call the sleep symptoms. Patients with **depression**, for example, may have difficulty falling asleep and also early morning awakening, therefore their sleep duration is shorter. Generally, as human beings, we require at least about six to eight hours sleep time duration. But those people with depression may have shorter duration because of difficulty in falling

asleep. They probably sleep at 2 o'clock in the morning and they wake up early at four or five o'clock. So their sleep durations, instead of six hours at least, they only have about two to three hours. So this is depression.

For **schizophrenia**, they have problems with perceptions, auditory hallucinations; and because of these auditory hallucinations, it may disturb their sleep as well. Therefore, they may have sleep deprivation as a result of the hallucinations they have.

People with **addiction disorders**, for example, heroin addiction, because of the dependency to the drug, especially when they are not taking the drugs, they suffer from what we call the withdrawal syndrome. This withdrawal syndrome will prevent them from having good sleep, where they can't sleep well at night. This is another common mental problem that gives rise to sleep problems.

Krishna : While diagnosing the patient with insomnia, what other related symptoms should we look out for in order not to miss any other dangerous sleep-related problems such as OSA, Narcolepsy or Thyroid problems?

Prof Rusdi : Okay, other reasons for sleep problems like medical comorbidities. You know, like **endocrine disorders**, for example, like diabetes. **Patients with diabetes can't sleep well at night because they pass urine frequently at night, especially uncontrolled diabetes. People with hormonal problems like hypothyroidism and hyperthyroidism, they also suffer from sleep problems.**

And you've also mentioned OSA just now. OSA is a short-term for **Obstructive Sleep Apnea**. When you are awake, your airway is patented, but when you go to sleep, your airway which consists of smooth muscles will collapse and therefore cause obstruction. And this will sometimes give rise to snoring during sleep. Oxygen is also inadequate during sleep because of this obstruction. So this is another common reason that gives rise to sleep problems as well. For OSA, there is actually a treatment for it, you can receive non-surgical treatments, for example like using the Continuous Positive Airway Pressure, or what we call CPAP, where you wear a mask during sleep. This CPAP provides the patent airway during sleep, and therefore, the sleep function will become good during sleep. So, you can actually have a good sleep with this CPAP. Another treatment for this Obstructive Sleep Apnea, you can go for surgery, especially apnea secondary to large tonsils, adenoids; especially in children they have to remove the large tonsils in order to have a patent airway during sleep. So this is correctable by surgery.

Amelia : Okay, so now moving on to the treatment part, how should we exactly counter insomnia from the biopsychosocial approach?

Prof Rusdi : Okay, in order to address the insomnia problem, we need to approach this by using a biopsychosocial approach. **Biologically**, we use medications, especially for those with chronic insomnia, we use benzodiazepines, sometimes especially the intermediate and also long-acting benzodiazepines. And, of course, **psychosocial** is also quite important, particularly **psychoeducation on good sleep hygiene**. And of course, we need to treat the primary problem, the underlying problem. If they have hypo- or hyperthyroidism. In case of hyperthyroidism, we give a hormone supplement : Thyroxine. And for OSA, as I mentioned just now, CPAP during nighttime or undergo surgical removal of tonsil especially in the younger population. Those with the substance use disorder problem, we need to treat underlying dependency syndrome. And I think what is most important is to address good sleep hygiene. Educate them about good sleep hygiene. This is the most common reason why people have sleep difficulties at night.

Krishna : Yes, I really agree with you, Prof. Prof, according to the Centers for Disease Control and Prevention, or in short - CDC, they state that practising and implementing good sleep habits like having good ventilation and better room condition will also aid in sleeping better. How is it done exactly?

Prof Rusdi : You advise your patient so you identify or you exclude all the secondary causes of sleep problems. **If you don't have any particular causes for sleep problems except post sleep then you can actually advise them to practise good sleep hygiene.** Good sleep hygiene basically you advise them to **have regular daily physical exercise**, especially at day time, while exercising at least promoting sleep .When your body gets exhausted, you can sleep well at night. Another advice is to **minimize daytime napping**. Some people can't sleep at night because they sleep during day time. It is good to sleep during day time for elderly people, but not for young people. If you want to nap, try not to nap too long. The longest is probably half an hour, and this is particularly for elderly people.

Avoid fluid intake and also heavy meals just before bedtime. Anything you want to take, you take before 8 o'clock at night. If you sleep at 12 o'clock. In order for food to be processed, it needs 4 hours. So that is why that means If you sleep early, maybe 6 o'clock in the evening you already cannot take all these, particularly the heavy food. **Avoid caffeine drinks or caffeine intake at night time.** Caffeine, we know, it disturbs sleep. Especially those coffee lovers. You want to go to a cafe, then you should go early, during day time, not during night time. **Avoid regular consumption of alcohol.** Some people say alcohol promotes sleep, yes, during the initial phase. But later on, when they become regular, they become hooked to this alcohol, their sleep function deteriorated. **Instead of promoting sleep, because of withdrawal, they need to take alcohol every night, and later they become addicted to alcohol.**

Avoid reading and watching TV while in bed. So this is another important factor. Some of us do everything in the room. Especially during this Covid-19. We work in the room, you bring back all your office work, or you excessively you used to probably study in your bedroom, which is not the right habit. The room should only be provided for sleep and also for sex .No other things can appear inside. No TV, no radio in the room. No watching TV in bed. **Sleep in the dark is also very important.** Make a habit when you sleep. **The temperature, the light, is not so hot, and the light not so bright, and a comfortable environment.** We do need air-cond in the room. Some of us stay in the flat or bungalow, made up of cement. Cement you know sometimes, daytime hot, then will continue until nighttime. So that's why sometimes we need air conditioning in order to provide good temperature during the night time especially

And of course when you sleep, **you need a regular time for going to bed**, and also for waking up. This is important. You need to **train your body to go to sleep at regular time** and if you have some problems, for example, feeling anxious at night time you can't sleep, **you can take this relaxation technique or breathing exercise.** This is very easy to do. You just go to any website. There are hundreds, thousands of websites. They can teach you how to do the relaxation technique breathing exercise. So these are among the major things you can do or you can advise your patients in order to have **good sleep hygiene.**

Amelia : About benzodiazepine, a drug you've mentioned earlier which is commonly used for anxiety, epilepsy or insomnia, even though it is a useful drug, it is usually prescribed just for a short period of time. Can you elaborate more on the reason behind the short-term use of Benzodiazepine?

Prof Rusdi : Benzodiazepine, even though it's a good medication for sleep, but if you use it for long-term, I mean on a regular basis everyday, **tolerance can develop**. Tolerance means, over a period of time, **you require more and more dosing in order to get the same effect**. Or when you use the same dose overtime, the effect gets less and less. Especially for short-acting benzodiazepines; short-acting benzodiazepines like Zolpidem, Alprazolam, or Zenac. So, these short-acting benzodiazepines generally easily generate tolerance as compared to long-acting ones. **That's why if you want to use benzodiazepines for sleeping, normally the doctor will give you the intermediate or long-acting**. For example, Lorazepam which is intermediate-acting, the duration of action is about six to eight hours, so it is very ideal to be used as sleeping tablets as compared to short-acting, sometimes only lasting for four hours. And sometimes, it's good to initiate sleep but you're not able to maintain sleep after that. In the middle of the night, you may have intermittent awakening as well. **So that's why we only give benzodiazepines to only those with chronic insomnia, and we try to give the longer acting ones.**

Amelia : And that marks the end of this session! Before we officially end this episode, Prof, do you want to summarize the messages you have provided to the listeners? before we officially end this episode Prof?

Prof Rusdi : **If any of you are suffering from chronic insomnia, you can actually go to see doctors to rule out what are the primary causes for your sleep problems.** And for the short-term sleep problems, you can practice good sleep hygiene as I've mentioned before. And on behalf of **Sleep Disorder Society Malaysia** which I'm one of the committees, I would like to invite you all to go to this website : **sleepdisordersociety.org** . You can get a lot of information from that website, and you can also know which are the places you can go for sleep study if you need one. In Malaysia, we have more than twenty **sleep study centres**, either in the Ministry of Health hospitals or in the private hospitals. In PPUM, we also have the sleep study available even in UMMC or UM Specialist Centre. So please visit the website to know the details about the sleep matters. Thank you.

Krishna : Okay, thank you for the wonderful and in-depth session Prof Rusdi! Amelia and I had a fun time hosting this discussion with you, and we are truly honoured and grateful for the insightful messages you have provided us with. I hope that we have all gained some knowledge about insomnia and will be able to implement good habits to have a better sleep during this pandemic. Once again, on behalf of Malaysian Medics International (MMI), we hope the listeners had fun listening to our podcast series and thanks for tuning in!

Amelia : Thank you Prof Rusdi once again.

Prof Rusdi : Okay, you're welcome. Thank you.