

## Sleep Disorders and Type 2 Diabetes

During the past decade research results have indicated that restorative sleep is as essential for the well being of people with type 2 diabetes as are exercise and appropriate diet. Over 300 sleep diagnoses are reported. Disrupted sleep, as seen in sleep disorders such as obstructive sleep apnea, restless legs syndrome/periodic limb movements and insomnia, has been indicated as a potential risk factors for insulin resistance, glucose intolerance and type 2 diabetes. Sleep deprivation, often a result of sleep disorders has also been found to be associated with obesity. Although obstructive sleep apnea, restless legs syndrome and insomnia are frequently seen in people with diabetes, they are often undiagnosed and untreated.

### **Obstructive Sleep Apnea**

Although often seen in people that are obese, a relationship between type 2 diabetes and obstructive sleep apnea (OSA) has been found to be independent of obesity. The characteristic features of OSA include a history of snoring, a witnessed episode of temporary breathing cessation and excessive daytime sleepiness. An overnight sleep study is used to diagnose OSA. Treatment for OSA includes lifestyle modifications such as weight loss. Continuous positive airways pressure (CPAP) is a widely used treatment. Oral appliances and surgery are other treatment options. OSA is associated with hypertension cardiovascular disease. Treatment of OSA with CPAP has been shown in some studies to improve type 2 diabetes glycemic control, resistant hypertension and heart failure. The relationship between OSA and type 2 diabetes is so common that the International Diabetes Federation has recommended that those with type 2 diabetes be screened for OSA and those with OSA be screened for type 2 diabetes.

### **Restless Legs Syndrome**

Restless Legs Syndrome (RLS) is a common neurological condition characterized by unpleasant sensations that occur especially at bedtime. These sensations are frequently described as “crawling” or “jittery” and are associated with an irresistible urge to move the limbs. This brings only temporary relief. Although these sensations vary in intensity during a lifetime they tend to increase with age. As a result, difficulty in initiating and maintaining sleep occur. A relationship of RLS and peripheral neuropathy has been reported. Treatment of RLS depends on the frequency and severity of symptoms. The impact of RLS on metabolic control of type 2 diabetes needs to be studied.

### **Insomnia**

Chronic insomnia resulting in short sleep duration has been found to be more frequently seen in those with type 2 diabetes and also associated with a higher risk of developing type 2 diabetes. Both type 2 diabetes and insomnia are seen more frequently with increasing age. Insomnia includes one or more of the following: (1) difficulty falling asleep, (2) staying asleep and (3) waking up early and unable to get back

to sleep. Poor sleep is associated with higher A1C levels in people with diabetes. Treatment includes appropriate behavior change techniques call Cognitive Behavioral Therapy for Insomnia. This approach is recommended before the use of medications. Research on the impact of improved sleep behaviors on diabetes metabolic control needs to be studied.