

# PICKWICKIAN SYNDROME

by Respiratory Care Student Donald Haycraft



In his book, *The Posthumous Papers of the Pickwick Club* published in 1837, Charles Dickens described a male servant who could not help falling asleep during the day. Although excessively obese, he happened to be in good health, was described as being "wonderfully fat", and only had one complaint; day time somnolence.

Pickwickian syndrome more commonly known today as obesity hypoventilation syndrome (OHS), is the combination of severe obesity with obstructive sleep apnea causing hypoxia and hypercapnia resulting in daytime sleepiness and chronic respiratory acidosis. It is not named, however, after a doctor who might have first described it, but instead after the literary character created by Dickens.

In 1956 Dr. C.S. Burwell and his colleagues published a medical case report titled "Extreme Obesity Associated with Alveolar Hypoventilation - A Pickwickian Syndrome". Some of the signs and symptoms of Obesity Hypoventilation Syndrome include cyanosis, periodic apnea, polycythemia and right ventricular hypertrophy.

The problem facing health care workers today in diagnosing Pickwickian Syndrome is that it shares several common symptoms with other major diseases. A complete evaluation must be performed to rule out other conditions such as tonsillar hypertrophy, Downs Syndrome or Prader-Willi Syndrome. It is also important to determine the severity of the obesity.

The most common practice to calculate the degree of obesity is to calculate the BMI (body mass index). It was first proposed in 1869 by a Belgian Statistician Adolph Quetelet, who was actually a friend of Charles Dickens. The measure was first called Quetelet index. It measures obesity by dividing body weight in kilograms by the square of one's height (kg/m<sup>2</sup>). "Overweight" is defined as having a BMI >25, "obesity", >30, and "morbid obesity" as >40 kg/m<sup>2</sup>.

A sleep study can also be performed to determine whether the patient actually has obstructive sleep apnea. Arterial blood gases are drawn to determine respiratory acidosis. Holter monitors may be needed also to determine any nocturnal arrhythmias. Blood tests to determine liver function and increased Red Blood Count count. Echocardiograms are used to determine heart enlargement or cor-pulmonale.

There are several treatments for Obesity Hypoventilation Syndrome. One is the reduction of excessive body weight by a combination of diet control and exercise, if the person is physically capable. Surgical interventions such as gastric bypass is also a treatment, though this is an extreme treatment with many side effects. Safer methods include BiPAP or CPAP while sleeping. In some cases tracheostomy is required. Treatment of other conditions should also be addressed at this time.

Pickwickian Syndrome is totally reversible if it is diagnosed and treated properly and promptly. If it goes undiagnosed, how-

ever, outcomes are not favorable. Pickwickian Syndrome can lead to serious heart and blood vessel complications, severe disability or death. Some other complications include depression, irritability, increased risk of accidents and sexual dysfunction.

Another matter that concerns healthcare workers today is the dramatic increase in Obesity Hypoventilation Syndrome seen in children, usually between the ages of 5 to 12 years old, a group in which Pickwickian Syndrome has multiplied three times since 1960. There is a greater variety of symptoms in children with OHS than adults and diagnosis is more difficult with serious consequences for growth and development if left untreated. Some of the symptoms include hypertrophy of the tonsils, growths on the adenoids, allergic rhinitis and other diseases such as Downs Syndrome and Muscular Dystrophy. Other less definitive symptoms such as snoring, daytime sleepiness and slow growth rates are harder to pinpoint to Pickwickian Syndrome. Polysomnography, although excellent for diagnosing adult OHS has not been standardized in the use for children. Treatment for OHS depends on the underlying symptoms, and requires multi-disciplinary treatment. Most non-invasive procedures such as positive airway nasal pressure or procedures for mask respiration (CPAP, BiPAP) are only used in exceptional cases where surgery on the adenoids or tonsils, commonly referred to as ATE, is not an option. Medications also have not been evaluated in clinical trials at

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this time.

Medications for OHS are mainly geared toward weight loss or for the treatment of other symptoms caused by the disease. Some patients may have to be on inhalers for COPD or asthma. Others may have blood pressure medications or medications for heart conditions.

One thing is certain; the best way to cure Pickwickian Syndrome is weight loss. Losing excessive weight will decrease the work of breathing, lower blood pressure and increase cardiac output. Patients should be treated for OHS, but they also need to be treated for the cause of their obesity, have counseling for nutrition and any other psychological problems that may be associated with this disease. This in turn will cure OHS.

If Dickens had written his book today, there might be a chapter about how his servant Joe had had successful gastric bypass and after intensive counseling, was able to lose weight, sleep at night and be more functional during the day. Charles Dickens may have even written "It was the best of operations; it was the worst of diseases".