

## **The Complications of Diabetes!** **NMA Physicians Discuss the Physical Impact of Diabetes**

### **What is Diabetes?**

Diabetes is a disease in which the body does not produce or properly use insulin. Insulin is a hormone that is needed to convert sugar, starches, and other food into energy needed for daily life. The cause of diabetes continues to be a mystery, although both genetics and environmental factors such as obesity and lack of physical activity play important roles.

### **Complications of Diabetes**

We know that even before a person is diagnosed with diabetes, individuals with pre-diabetes begin to develop damage vessels, nerves, and organs of the body. Complications seen with diabetes – blindness, amputations, heart and kidney disease, stroke -- are well known. Damage occurs when the body of a diabetic patient is unable to manage its insulin levels. If left untreated or properly monitored for long periods of time, diabetics can develop significant health problems and even death. To highlight some of the familiar complications associated with diabetes, the National Medical Association (NMA) Diabetes Education Program asked member specialists to explain some of these conditions. This article discusses kidney failure, nerve damage, eye disease, erectile dysfunction, and depression.

#### **Hypertension & Chronic Kidney Failure** - Sandra Gadson, M.D. – *NMA Past President*

Hypertension (high blood pressure) is an aggressive disease of the blood vessels that is multiplied with intensity in the face of diabetes, contributing to cardiovascular disease (heart disease and stroke). The latter accounts for 65% of all deaths in diabetic patients. Taking care of blood pressure and diabetes can also help to prevent chronic kidney failure, which is associated with protein in the urine leading to diabetic nephropathy. There is a high incidence of End Stage Renal Disease (ESRD) in the African American community. The proteinuria that occurs with can be controlled or decreased with a special group of blood pressure medicines called Angiotensin-Converting Enzyme Inhibitors (ACE). These blood pressure medicines reduce the protein which helps to preserve the kidney function. It is important to monitor your blood pressure and glucose levels. Hypertension and diabetes are treatable!

#### **Nerve Damage (Neurological Effects)** - Carolyn Barley Britton, M.D. M.S. – *NMA President Elect*

Nerve damage or neuropathy is the most common neurologic complication of diabetes, and occurs in up to half of diabetics. This problem may be missed by the diabetic and by the doctor. There are several types of neuropathy: peripheral neuropathy, focal (mononeuropathy or a single nerve) and generalized symmetric- sensory, sensori-motor or motor; and autonomic neuropathy. When diabetes affects a single nerve (mononeuropathy), the diabetic may have double vision (6<sup>th</sup> cranial nerve), hand pain and numbness (carpal tunnel syndrome) or leg weakness (femoral nerve). When diabetes affects multiple nerves (generalized), symptoms include tingling, burning, electric shock like sensations and pain in the feet, worse at night. Some patients also complain of numbness or feeling as if they are wearing socks or tight bands while others have no symptoms. The examination shows loss

of pinprick, temperature, position sense and vibratory sensation in the legs. Ankle reflexes are often absent.

Autonomic neuropathy is common in diabetics and is related to bladder symptoms of urgency and incontinence, bowel symptoms of constipation, impotence and dizziness due to low blood pressure or hypotension when standing. Diabetics with autonomic involvement are at risk for sudden death or heart attack. Nerve damage predisposes the diabetic to limb injury and sometimes amputation because of delayed recognition of injury and infection. Joint damage also occurs when there is nerve damage.

Although commonplace and often serious, neurologic complications of diabetes may be prevented or improved by strict control of blood glucose. All diabetics should be screened for nerve damage by focused history and regular examination that includes testing for sensation and reflexes.

**Eye Disease** - *Deirdre Holloway, M.D – NMA Region IV Chairperson.* Diabetic Retinopathy is the most common of the diabetic eye diseases and is the leading cause of blindness in the United States. It occurs when there is damage to the blood vessels of the retina of the eye. Usually there are no symptoms such as pain or blurred vision early in the disease. However, in the more advanced phases, loss of vision can occur due to leaking fluid from the damaged vessels or bleeding from abnormal blood vessels that grow on the back of the eye.

Almost half of all people with diabetes will develop some form of retinopathy during their lives. The development of retinopathy is influenced by the duration and severity of diabetes, the control of the blood sugar and other factors such as hypertension and smoking which increase the probability of its occurrence. Research has shown that better control of the blood sugar can slow onset and progression of this eye disease.

The good news is that retinopathy can be detected early and the severe complications that might occur later can often be prevented by treatment. Laser treatment is used by the eye care professional to treat this disease by concentrating focused light energy on the back of the eye. Since there are generally no early warning signs of diabetic retinopathy, the best defense is an annual dilated eye exam by an eye professional.

**Erectile Dysfunction (ED)** – *Brian A. Stone MD, FACS - President & Chair, R. Frank Jones Urological Society.* Diabetes often co-exists in the presence of hypertension, dyslipidemia, obesity, nicotine abuse and chronic physical inactivity (sedentary lifestyle). All of these conditions are risk factors for erectile dysfunction (ED) and cardiovascular disease. Approximately 10 years after the diagnosis of diabetes, 50% of diabetic males develop ED. It tends to be more severe and resistant to medical treatments, than in non-diabetic males. Diabetes results in significant damage to the tissues of the penis which are responsible for erections; resulting in biochemical, functional and structural abnormalities. In medical terms this can be summarized as “endothelial dysfunction” and in lay terms it can be called “diabetic vascular disease”. Diabetes damages the blood vessels that carry blood to the penis for the erection and the veins which must retain the blood to maintain the erection. The progressive nature of diabetes results in vascular damage that impairs a man’s response to the medical treatments for ED including the oral agents (Viagra, Cialis and Levitra), the urethral suppository (MUSE) and penile injections (Caverject, Edex and Trimix). All of

these “blood flow enhancers” are rendered ineffective by the progressive injury to blood vessels of the penis by impaired blood sugar regulation in poorly controlled diabetics. This further complicated by the peripheral neuropathy (nerve damage) that accompanies chronic diabetes. The lack of response to medical therapies has made the inflatable penile pump the “back bone” of treatment of ED in diabetic males, achieving a >90% patient and partner satisfaction rate.

**Depression** - *Rahn Bailey, M.D. -- NMA Secretary, House of Delegates.* Co-morbidities have become very important in clinical medicine as we grow in our understanding of the impact of each disease on the whole system. African Americans have been shown for some time to consistently suffer from more episodes of obesity, hypertension and diabetes. These illnesses compounded with higher rates of chemical dependency, place patients at more risk of poor physical health and general disease. All of these concerns increase the likelihood of limited clinical functional outcomes both medically and psychiatrically. Depressed patients tend to eat more and exercise less, which results in weight gain further hindering efforts to control blood sugar levels. It is noted that 13.3% of all African Americans aged 20 years or older have diabetes and they are 1.8 times more likely to have diabetes than other ethnic groups.<sup>4</sup> Results have shown that depression as a major factor can increase the symptoms of diabetes and decrease overall functional well-being.<sup>1</sup> African Americans have a higher rate of major depression and co-morbid substance abuse.<sup>2,3</sup> Higher such rates can alter the initial clinical response to psychotropic medication in the treatment of depression, as well as prolong the course of treatment. In general, these type co-morbidities have the potential of preventing effective chances at remission.<sup>2</sup> Further, any therapy which may worsen hypertension or obesity should be carefully assessed before beginning treatment in this patient population, for African Americans present initially with increased risk of heightened morbidity in these areas.<sup>5</sup> Depression and diabetes require careful management of both diseases. Failure to manage the diseases will severely impact the quality of life.<sup>6</sup>

### **NMA Diabetes Education Program**

The primary message from this article is that with good control many of the known complications of diabetes can be avoidable and you can live a healthy productive life. To learn more about the NMA’s efforts to reduce the disproportionate burden of diabetes among African Americans, as well as read the extended version of this article, please visit [www.NMAdiabetesnet.org](http://www.NMAdiabetesnet.org).