



STROKE

My wife and I returned home from a quiet dinner on New Year's Eve with plans to watch the ball drop in New York City's Times Square on television. We were anxious to see the status of Dick Clark since he missed last year's celebration due to a stroke. For those of you who watched, his exposure time was limited and there was evidence of weakness on his right side and ongoing aphasia (speech impairment). While it was nice to see him on television again, it was also sad to see the permanent extent of the damage from his stroke. This observation is why I chose to discuss this topic for the January issue.

Stroke is the leading cause of disability and the third leading cause of death in the United States. In 1998, it was estimated that there were 731,000 new strokes per year.

Stroke is defined as a sudden neurological deficit, which can be caused by hemorrhage (20% of cases) or ischemia (lack of adequate oxygenation - 80%). Strokes can involve any area of the brain, with symptoms ranging from none at all to complete loss of function. There is a harbinger of a future stroke, referred to as a transient ischemic attack (TIA). In a TIA there is a sudden vascular-related focal neurological deficit that resolves completely, usually within 1-2 hours but no longer than 24 hours. In a person with a TIA, it offers doctors the opportunity to intervene and prevent an actual stroke from occurring.

In hemorrhagic strokes, they commonly result from aneurysms that bleed. These aneurysms can be congenital in nature, causing a stroke in a young individual. They can also be atherosclerotic in nature, seen in the older population. If a person survives a stroke from a subarachnoid hemorrhage, the aneurysm can be repaired and may give excellent long-term results.

More devastating is the hemorrhagic stroke that occurs within the brain itself, referred to as intra-cerebral hemorrhage. This

often occurs in older individuals with hypertension. These are usually quite devastating, and in cases such as these there is no aneurysm to be repaired.

The more common ischemic strokes can be caused by obstruction of large arteries within the neck and brain, from small vessel occlusive disease within the brain tissue itself, or from cardio-embolism (i.e., small clots of debris that break off from one area and travel up to the brain causing the stroke.) A cardio-embolism is usually seen in individuals with atrial fibrillation, cardiomyopathies and valvular disease of the heart. Large vessel arteriosclerosis usually involves the carotid arteries in the neck, and this area can be surgically corrected if significant obstruction exists. The small vessel occlusive arteriosclerosis disease causes the mini-strokes, seen in individuals with hypertension, diabetes and old age.

Ultrasound studies can detect occlusive disease within the large carotid arteries of the neck. They are often performed in high-risk individuals and results are commonly seen during the insurance underwriting process. If the blockage is greater than 70%, surgery is recommended. In a blockage of 50-70%, surgery may or may not be recommended. If the blockage is less, usually some type of anti-coagulation is given, most often anti-platelet treatment with aspirin or similar drugs.

More recently carotid artery angioplasty and stenting has been performed in place of surgery. It may have less risk of complications and death than surgery. Everyone at a high risk for stroke should be on an aspirin or similar drug unless there are specific contraindications.

Once a stroke occurs, care should be given in specialized centers to obtain the best outcomes. The mainstays of treatment include anti-coagulation, the lowering of blood pressure, and the control of increased intra-cranial pressure. Over the last 10 years, intravenous thrombolytic therapy has been available. It must be given within three hours of the onset of symptoms, and while it does give improved outcomes, it also increases the risk of bleeding within the brain. For these reasons, it has not been widely implemented as a mainstay of treatment in this country.

Once a stroke occurs, how much recovery is made depends on how severe the initial insult was. The greater the neurological deficit, the more likely a person will have permanent neurological deficits. While it can take up to 12 months to see full recovery, most neurological recovery occurs within the first several months. There are some individuals that make a completely full recovery, although most have some type of deficit.

Since stroke is so devastating once it occurs, it is important to try and reduce the incidence of stroke by reducing various risk factors. Hypertension is the number one risk factor for stroke. Adequate control of hypertension decreases the risk of stroke at least 50%. Other risk factor modification includes cessation of tobacco, the treatment of elevated lipids, and treatment of elevated homocysteine levels. Diabetics are also increased risks for stroke, and it is important to control the diabetes as carefully as possible. Lastly, alcohol consumption of greater than five drinks per day has shown to increase the risk of stroke.

It is advisable for everyone to have evaluation done regarding the carotid arteries in their neck, especially in anyone with

risk factors. The findings of carotid artery obstruction can be treated as noted before, including surgery, angioplasty with stenting, and the use of anti-platelet drugs for lesser degrees of obstruction.

From an underwriting standpoint, the first thing to determine is the cause of stroke. If it was caused by an aneurysm this has been repaired, it could be a standard rating. Underwriters also note the degree of neurological impairment that is present. Most importantly, just as in the underwriting of coronary artery disease, the underwriter looks at risk factor modification. The better the control of the risk factors, the more favorable the prognosis regarding future stroke, and thus a better rating. Particular attention is also paid to the heart. If a person has obstruction in the arteries of the head and neck, they may also have it in the coronary arteries. Overall, most cases of stroke are insurable for life. A more conservative approach is taken regarding disability, with more particular attention paid to the actual level of neurological deficit.

So welcome back Dick Clark. I wonder if his stroke could have been prevented with proper evaluation. I doubt he will be back next year.