



## ASK DR. BOB . . .

*with Dr. Bob Frank*

### **METABOLIC SYNDROME**

**W**hat is the metabolic syndrome? This is a question that I have heard recently, not only from underwriters but also from several friends of mine. In general, the metabolic syndrome is a constellation of physical conditions and metabolic abnormalities commonly found in association that increases an individual's risk for the development of diabetes, cardiovascular disease, and other medical conditions. This association has been recognized for a number of years, and the metabolic syndrome in the recent past has had several different names, including the insulin resistance syndrome, syndrome X, dysmetabolic syndrome, the cardiovascular metabolic syndrome, and the deadly quartet. There are specific defining characteristics, which vary depending on which health organization's definition is being used. The components of the metabolic syndrome consist of obesity, which can be defined as a BMI greater than 30 or abdominal obesity (greater than 40 inches in males and greater than 35 inches in females). Insulin resistance is also a factor. This may range anywhere from overt diabetes mellitus to insulin resistance alone (with insulin resistance, blood sugar may be normal but the insulin level required to maintain the normal sugar is elevated). There is a relationship between these two criteria, in that obesity predisposes to insulin resistance. Many, but not all, of obese individuals have insulin resistance. Elevated blood pressure is also one of the criteria, and this is defined as blood pressures equal to or greater than 130/85, which is a lower blood pressure reading than defines actual hypertension. Dyslipidemia is the last component of the metabolic syndrome. This dyslipidemia can be either elevated triglycerides (greater than 150mg/dl) or a low level of HDL cholesterol. The HDL in men would be less than 40mg/dl and in women less than 50mg/dl. It has also been noted that a ratio of triglycerides to HDL that is greater than four probably represents the metabolic syndrome.

One reason the metabolic syndrome is being actively discussed is because of its high prevalence. It is estimated that in adults in the United States greater than 20 years of age, between 20-25% have the metabolic syndrome. The prevalence also increases with age, and perhaps as many as 40% of Americans greater than 60 years of age have the metabolic syndrome. There is a strong correlation between the metabolic syndrome and atherosclerosis. Through various chemical mediators, including such proteins as C-reactive protein, the metabolic syndrome promotes hypercoagulability and inflammation within our vessels. This leads to worsening atherosclerosis. It has also been shown that the more components of the metabolic syndrome that are present then more likely is the development of atherosclerotic disease.

Last year an article in the Journal of the American Medical Association described a long (10-15 years) follow up of a cohort of Finnish men age 42 to 60 years of age who had the metabolic syndrome but did not have any type of cardiovascular disease or diabetes at the time of enrollment in the study. In this long follow up, men with the metabolic syndrome were three times more likely to die of coronary heart disease than those without the metabolic syndrome, after adjustment for known conventional cardiovascular risk factors. In addition to the increased risk of arteriosclerosis, there is a strong correlation with the development of diabetes. There is also an increased risk of fatty liver, which we discussed last month, and polycystic ovaries in females. There may even be an increased risk of breast and prostate cancer.

The treatment of the metabolic syndrome can be difficult. There is no single medication that can be taken. Since the majority of these individuals are obese, weight reduction is essential. The dyslipidemia can be treated with drugs, although medications are not very good at elevating the low levels of HDL cholesterol. If actual diabetes is not present, weight reduction can decrease the risk of developing diabetes later. The diabetes drug metformin (Glucophage) has

---

Dr. Bob continued on next page

also been used to treat insulin resistance even if diabetes is not present. Hypertension can also be treated with medications. Physical exercise and increased activity can also improve the dyslipidemia.

So the metabolic syndrome is an epidemic in this country, just like the epidemic of obesity. If the current data is correct, many of these individuals are going to have early and more severe arteriosclerosis, with an increased risk of dying of cardiac disease. We have made great strides in reducing the mortality from heart disease, but if something is not done to stem the epidemic of the metabolic syndrome, then we may be giving back some of these gains. From the

underwriting standpoint, there could be an individual whose blood pressure or weight or lipid values by themselves may not seem that bad or even ratable, but taken together they may qualify as the metabolic syndrome and, thus, there is a definite increased risk for mortality in the future. Underwriters and medical directors will need to keep this in mind in making sound underwriting decisions.

**I would be happy to discuss this with anyone who has questions. Also, please feel free to let me know of any particular topic that you would like me to address in future articles of FYI.**