

CASE STUDY

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A 38-year-old man—let's call him Charlie—presents to his primary care physician for a refill of allergy medication. On physical examination, his height is 5 ft 9 in, and his weight is 225 lb, for a body mass index of 33.2 kg/m². His waist circumference is 40 in. His blood pressure is slightly elevated at 140/90 mm Hg.¹

Charlie states that he recently attended a health fair, where he was told that he had high triglycerides (TGs). The printout from the health fair shows the following data¹:

- TGs = 220 mg/dL
- Low-density lipoprotein (LDL) cholesterol = 109 mg/dL
- High-density lipoprotein (HDL) cholesterol = 38 mg/dL

Charlie recalls that his father died of a heart attack at age 50, and that his mother was diagnosed with type 2 diabetes at age 69.¹

The physician orders a fasting plasma glucose test, which reveals a level of 110 mg/dL, which is above normal, but below the threshold for diabetes. Because of a high suspicion of diabetes, the physician then orders a standard oral glucose tolerance test (OGTT), which shows a 2-hour glucose level of 204 mg/dL. The OGTT is repeated 2 weeks later, with the same result. Based on the OGTT,

Charlie meets American Diabetes Association criteria for diabetes. His glycated hemoglobin is <6%.¹

In addition to type 2 diabetes, Charlie also meets 4 of the 5 criteria for metabolic syndrome,² as shown in the **Table**.

Charlie is referred to a certified diabetes educator for lifestyle intervention, including diet and exercise. In addition, he is started on combination therapy with rosiglitazone and metformin. Besides treating his diabetes, the combination of rosiglitazone plus metformin may also address aspects of the metabolic syndrome. First, metformin may promote weight loss. Second, rosiglitazone may help lower blood pressure, reduce TGs, and increase HDL cholesterol. Although rosiglitazone causes weight gain—potentially offsetting metformin-induced weight loss—it may promote redistribution of adipose tissue from visceral to subcutaneous depots.

REFERENCES

1. LaSalle JR. Management of type 2 diabetes: focus on the thiazolidinediones. *Hosp Physician*. 2005;41:37-42, 46.
2. Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults. Executive summary of the third report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). *JAMA*. 2001;285:2486-2497.

Table. Criteria for Diagnosis of Metabolic Syndrome

Charlie's Values ¹	Defining Level ²
Waist circumference = 40 in	>40 in (men); >35 in (women)
Triglycerides = 220 mg/dL	≥150 mg/dL
High-density lipoprotein cholesterol = 38 mg/dL	<40 mg/dL (men); <50 mg/dL (women)
Blood pressure = 140/90 mm Hg	≥130/≥85 mm Hg
Fasting plasma glucose = 110 mg/dL	≥110 mg/dL