

Metabolic Syndrome

Underrated or underdiagnosed?

The metabolic syndrome is a cluster of cardiovascular risk factors that is frequently associated with insulin resistance. Although it is synonymous with the “insulin resistance syndrome,” not all patients with the metabolic syndrome will have insulin resistance (1). In 2001, the National Cholesterol Education Program (NCEP) developed operational criteria to make a diagnosis of the metabolic syndrome based on clinical grounds and commonly used laboratory tests that are frequently carried out in an office practice (2). The importance of the metabolic syndrome was further highlighted in 2001 with the approval of an ICD-9 code (277.7) for the metabolic syndrome by the National Center for Health Statistics. Since then, the metabolic syndrome has received considerable attention in the research setting, but its impact in clinical practice is unclear.

In this issue of *Diabetes Care*, Ford (3) reports that the syndrome is rarely, if ever, recorded as a diagnosis in clinical practice, as assessed from two large national databases. While interesting and important to document, this finding is not surprising for several reasons. First, the analysis was based on data collected in 2002 and 2003, very soon after the diagnostic criteria and ICD-9 code for the metabolic syndrome were established. It is well recognized that more time is needed before new diagnostic codes are widely adopted. Additionally, one of the databases relied on inpatient diagnostic codes. It is highly unlikely that many patients will be admitted for a diagnosis of the metabolic syndrome. Even if it is one of many diagnoses present for a patient admitted for an acute crisis, adding a diagnosis of metabolic syndrome adds very little, if any, financial benefit. The diagnosis is also unlikely to be of practical value in the acute inpatient care setting, where clinicians rightly focus on the primary clinical reasons for admission.

Thus, one needs to focus on the use of this diagnostic code only in routine outpatient office visits. One reason for the

low coding may be that almost all patients with the metabolic syndrome have conditions for which physicians can receive reimbursement (e.g., diabetes and hypertension). Based on data from the National Health and Nutrition Examination Survey 1999–2002, 37 and 77% of patients with the metabolic syndrome have diabetes (fasting plasma glucose ≥ 126 mg/dl or current antidiabetes medication usage) and hypertension (systolic and/or diastolic blood pressure ≥ 140 and/or ≥ 90 mmHg and/or current antihypertensive medication usage), respectively. In sum, $<20\%$ of patients with the metabolic syndrome do not have either diabetes or hypertension (4).

Concern that reimbursement will not be provided if the metabolic syndrome is listed as an ICD-9 code needs to be addressed. Under certain circumstances, the use of ICD-9 code 277.7 for patients with the metabolic syndrome is not advised due to the potential inability to receive reimbursement. Specifically, on the website of the Endocrine Society, it is stated that “when one uses diagnosis code 277.7, coverage may be denied because of the presence of obesity, even when the obesity codes are not submitted on your claim. Where this is a problem, you are advised to avoid use of code 277.7 and to code only other DSX-associated conditions being treated, such as hypertension” (5). This issue needs to be clarified by payors, so that patients and health care professionals are not penalized for recognition of a clinical entity.

Nonetheless, the concept of the metabolic syndrome remains important. While an increasing number of studies have been published on the metabolic syndrome in recent years, the current understanding of many issues related to the metabolic syndrome is lacking. For example, studies have consistently reported higher cardiovascular risk among patients with versus those without the metabolic syndrome. However, it has not been determined whether the cardiovascular disease risk associated with having the

metabolic syndrome is greater than the sum of individual components of the metabolic syndrome, particularly diabetes and hypertension. Further controversy surrounds the definition and diagnostic criteria of the syndrome. For example, the World Health Organization (WHO) includes a measure of insulin resistance such as the fasting plasma insulin as one of the diagnostic criteria. Such an approach, however, although more likely to make the diagnosis synonymous with insulin resistance, is potentially challenging in clinical practice, due to the fact that insulin assays are not standardized and considerable insulin level variation exists over the natural history of type 2 diabetes. While the WHO and NCEP definitions are useful from an operational perspective, future research comparing these definitions and providing a better understanding of the future risk of outcomes (e.g., cardiovascular disease) associated with the metabolic syndrome should provide the opportunity to improve the criteria for defining the metabolic syndrome.

With this said, we return to the question of whether physicians should even be using the diagnostic code and what advantages its use would provide. It would be a shame if the diagnostic code for the metabolic syndrome is not being used because physicians do not recognize a practical value in making a diagnosis of the syndrome rather than just coding for hypertension or diabetes. However, if the lack of diagnosis is due to billing concerns, this problem needs to be addressed and corrected. Further information is needed before one can draw conclusions about the use or underuse of this diagnostic code.

Despite the low coding rate for the metabolic syndrome in billing records and controversies surrounding the diagnostic criteria, the diagnosis of the metabolic syndrome has become established. We believe that further research is needed to determine its true value in providing clin-

ical benefits for the patient. Then, the diagnostic code can be used with confidence.

KRISTI REYNOLDS, PHD, MPH
PAUL MUNTNER, PHD, MHS
VIVIAN FONSECA, MD

From the Departments of Epidemiology and Medicine, Tulane University Health Sciences Center, New Orleans, Louisiana.

Address correspondence to Vivian A. Fonseca, MD, Professor of Medicine and Pharmacology, Tulane-Tulane Alumni Chair in Diabetes, Director, Tulane Diabetes Program, Department of Medicine, Section of Endocrinology, Tulane University Medical Center, SL-53, 1430 Tulane Ave., New Orleans, LA 70112-2699. E-mail: vfonseca@tulane.edu.

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