The Centers for Disease Control (CDC) reported that diabetes mellitus affected 8.3% of the United States population in 2011. Type 2 diabetes mellitus is insidious; of the 25.8 million persons affected, the CDC indicated that ≈7 million were undiagnosed subjects. The health care costs and burden of diabetes mellitus are substantial; although cardiovascular disease is the leading cause of morbidity and mortality, other complications such as those in the eye, kidney, and nervous system may greatly impact the quality and span of life. A leading risk factor for the development of type 2 diabetes mellitus is obesity; obesity rates have risen dramatically in the United States over the past 2 decades. At present, the CDC estimates that 35.7% of Americans are obese. Alarmingly, the rise in obesity in adolescents renders many young people vulnerable to diabetes mellitus and its sequelae.

See accompanying articles on pages 1754, 1760, 1766, and 1771

Insulin Resistance and Metabolic Syndrome
Mechanisms and Consequences

Ann Marie Schmidt

The Centers for Disease Control (CDC) reported that diabetes mellitus affected 8.3% of the United States population in 2011. Type 2 diabetes mellitus is insidious; of the 25.8 million persons affected, the CDC indicated that ≈7 million were undiagnosed subjects. The health care costs and burden of diabetes mellitus are substantial; although cardiovascular disease is the leading cause of morbidity and mortality, other complications such as those in the eye, kidney, and nervous system may greatly impact the quality and span of life. A leading risk factor for the development of type 2 diabetes mellitus is obesity; obesity rates have risen dramatically in the United States over the past 2 decades. At present, the CDC estimates that 35.7% of Americans are obese. Alarmingly, the rise in obesity in adolescents renders many young people vulnerable to diabetes mellitus and its sequelae.

See accompanying articles on pages 1754, 1760, 1766, and 1771

This Miniseries on “Insulin Resistance and Metabolic Syndrome” will present a review of recent insights into the mechanisms that underlie these disorders, such as inflammation, tissue specific roles of insulin receptor signaling, glycation, and genetic predisposition; the consequences to human subjects, such as diabetes mellitus, cognitive impairment, and cancer, and insights into potential therapeutic interventions based on preclinical investigation and clinical trials. The value of pharmacological and life style intervention changes will be discussed.

As current epidemiological data highlight the worldwide epidemic of obesity, insulin resistance, and metabolic syndrome facing the future generations, public health awareness of this problem and rigorous basic science and clinical research are essential to stem the tide of these disorders. This miniseries underscores lessons learned from research and the evidence supporting specific interventions.

Disclosures

None.

References


Key Words: obesity ■ diabetes mellitus
Insulin Resistance and Metabolic Syndrome: Mechanisms and Consequences
Ann Marie Schmidt

doi: 10.1161/ATVBAHA.112.255588

The online version of this article, along with updated information and services, is located on the World Wide Web at:
http://atvb.ahajournals.org/content/32/8/1753

Permissions: Requests for permissions to reproduce figures, tables, or portions of articles originally published in Arteriosclerosis, Thrombosis, and Vascular Biology can be obtained via RightsLink, a service of the Copyright Clearance Center, not the Editorial Office. Once the online version of the published article for which permission is being requested is located, click Request Permissions in the middle column of the Web page under Services. Further information about this process is available in the Permissions and Rights Question and Answer document.

Reprints: Information about reprints can be found online at:
http://www.lww.com/reprints

Subscriptions: Information about subscribing to Arteriosclerosis, Thrombosis, and Vascular Biology is online at:
http://atvb.ahajournals.org//subscriptions/