

Type 2 Diabetes Phenotype and Progression Is Significantly Different if Diagnosed before versus after 65 Years of Age

Hubert Kolb, Ph.D.,¹ Berthold Schneider, Ph.D.,² Lutz Heinemann, Ph.D.,³
Tim Heise, M.D.,³ Volker Lodwig, Ph.D.,⁴ Jacques K. Tshiang Tshiananga, M.Sc.,⁴
Christian Weber, M.D.,⁴ Werner A. Scherbaum, M.D.,^{1,5} and Stephan Martin, M.D.^{1,6}

Abstract

Background:

The incidence of type 2 diabetes is increasing disproportionately in individuals <65 years of age. It is not known whether disease characteristics in these younger patients are similar to “classic” late-onset type 2 diabetes.

Methods:

In the epidemiological cohort study entitled “Retrospective Study: Self-Monitoring of Blood Glucose and Outcome in Patients with Type 2 Diabetes,” a total of 3268 patients from randomly contacted primary care practices were documented during a mean follow-up period of 6.5 years. All newly diagnosed patients of these practices were included.

Results:

At diagnosis, 64.2% of the patients were aged ≤65 years. Thereof, 57.2% were male, whereas in the age group >65 years only 35.0% were male ($p < 0.001$). The younger group exhibited more severe metabolic deterioration at diagnosis and in the following years than the older group. Conversely, the older group presented at diagnosis with a higher prevalence of cardiovascular risk factors. Self-monitoring of blood glucose (SMBG) was more prominent in the younger group. In both age groups, the use of SMBG was associated with a significantly lower risk ($p = 0.003$) of a combined end point (severe diabetic complication or all-cause mortality).

Conclusions:

There are considerable differences in disease characteristics between people diagnosed with type 2 diabetes during 45–65 years of age versus diagnosis at a later age. Type 2 diabetes diagnosed before the age of 65 years disproportionately affected men and exhibited a more severe disease course, but was characterized by significantly less cardiovascular risk factors in comparison to type 2 diabetes diagnosed at a later age. The use of SMBG was associated with a better clinical outcome in both age groups.

J Diabetes Sci Technol 2008;2(1):82-90

Author Affiliations: ¹German Diabetes Center, Institute for Clinical Diabetes Research, Düsseldorf, Germany; ²Medical University Hannover, Institute for Biometry, Hannover, Germany; ³Profil Institute for Metabolic Research, Neuss, Germany; ⁴Institute for Medical Informatics and Biostatistics, Basel, Switzerland; ⁵Department of Endocrinology, Diabetes and Rheumatology, University of Düsseldorf, Düsseldorf, Germany; and ⁶West German Diabetes and Health Centre, Düsseldorf, Germany

Abbreviations: (BMI) body mass index, (FBG) fasting blood glucose; (HbA1c) hemoglobin A1c; (OAD) oral antidiabetic drugs; (ROSSO) Retrospective Study: Self-Monitoring of Blood Glucose and Outcome in Patients with Type 2 Diabetes, (SMBG) self-monitoring of blood glucose

Keywords: diabetes therapy, diabetic complications, epidemiology, mortality, self-monitoring of blood glucose, type 2 diabetes

Corresponding Author: Prof. Dr. rer. nat. Lutz Heinemann, Profil Institut für Stoffwechselforschung, Hellersbergstr. 9, D-41460 Neuss, Germany; email address lutz.heinemann@profil-research.de