Diabetes in Bulgaria

IVONA K. DASKALOVA, MD
ASSEN N. TZANEV, MD, MSC, PHD

Diabetes mellitus has been on the list of socially significant diseases in Bulgaria since 1986 (1). It is on one of the foremost ratings among diseases with the highest morbidity and mortality. Diabetes is being disseminated so fast, one might say explosively, that the Ministry of Public Health in Bulgaria has classified it as a socially significant disease. With its widespread incidence and early and severe disabilities, diabetes has serious social, medical, economic, and psychological impacts on single individuals and society as a whole. Although there have been some positive steps forward, several problems have been left unsolved. Most patients are not compensated satisfactorily. Diabetic nephropathy, retinopathy, and other complications are manifested earlier in Bulgaria compared with some developed countries. Non-insulin-dependent (type II) diabetic patients continue treatment with sulfonylureas long after secondary resistance to those medications has set in. A very small percentage of insulin-dependent (type I) diabetic patients have been treated with intensified insulin therapy (IIT) because of lack of test strips for self-monitoring of blood glucose. The economic crisis in Bulgaria has a very unfavorable impact on regularity of deliveries of highly purified insulins and adequate diet treatments. There are no diet foods available or necessary medications.

Diabetes in Bulgaria has been systematically researched for several years (2336 diabetic patients were registered in 1947). In 1963, 14,905 diabetic outpatients were registered. The number of people with diabetes is ~150,000, whereas we forecast ~200,000 diabetic patients in Bulgaria toward the end of the century. Approximately 60% of diabetic patients are of employable age. Mortality rates for diabetes were 8.5/10,000 in 1973, 9.4/10,000 in 1978, 15.05/10,000 in 1981, and rising to 16.31/10,000 in 1982, and we experience ~10,000 new cases of diabetes each year. Of the 9093 patients with diabetes who were diagnosed in 1981, 7882 had type II diabetes and 709 had type I diabetes. According to a survey of 2119 patients, 24.57% said the condition began with an acute onset, 60.75% said the initial stage had not been so severe, and 14.68% had a nonsymptomatic initial stage (2,3). Factors influencing the public health problems of diabetes in our country are *1*) increased average longevity; 2) genetic factors, e.g., more children of diabetic parents; 3) high incidence of obesity; 4) erratic working habits and inactivity; and 5) more accurate early diagnoses.

Mass prophylactic checkups for diabetes were initiated in Bulgaria during 1969–1970. At that time, 0.45% of all those who had checkups had diabetes. In 1973, countrywide checkups included a total of 1,226,370 people. Postprandial glycosuria was found in 2.88% of diabetic patients. Altogether, 10,087 patients had glycosuria and they were given an additional overload of glucose, revealing another 0.45% of diabetic patients among them. Nearly all cases were type II, and in 82.7% of diabetic patients, the disease manifested itself only after patients had 40 yr of age. For the next few years, prophylactic checkups for diabetes were carried out by preventive medicine departments organized within regional hospitals (3).

In 1986, the Ministry of Public Health launched a program to address important conditions and diseases, including diabetes. This program includes numerous tasks for the medical personnel at all levels in connection of primary prophilaxis for diabetes mellitus, early diagnostics of high-risk cases, and already afflicted diabetic patients, treatment, rehabilitation, and teaching programs for the patients and their relatives. Their plans included endocrinology departments at nine of the country's largest hospitals and endocrinology sections within the internal medicine and therapeutic departments of the remaining regional hospitals. The Ministry recommended mass detection programs for diabetes to include all persons >35 yr old in all state-owned facilities and other working environments. Diabetic people undergoing insulin therapy would be accepted as outpatients at all of the endocrinology departments, whereas the rest would be taken as outpatients by district physicians. The Ministry also suggested creating a school for diabetic children and summer holiday camps for diabetic children and teenagers. In 1990, a large diabetic center for children was set up in the vicinity of Sofia.

For several years, Sofia's Diabetes Centre has been overseeing all patients treated with insulin in Sofia. There are 48 endocrinology consultation centers throughout the country. Our country has not reached its target of one consultation site per 100,000 people.

In 1988, the Ministry of Public Health issued a special bulletin (no. 8–9) that addressed extensively the sta-

FROM THE MEDICAL ACADEMY, INTERNAL CLINIC, SOFIA, BULGARIA.

ADDRESS CORRESPONDENCE AND REPRINT REQUESTS TO IVONA K. DASKALOVA, MD, MEDICAL ACADEMY, INTERNAL CLINIC, 15, D. NESTOROV STREET, 1431 SOFIA, BULGARIA.

RECEIVED FOR PUBLICATION 3 JULY 1991 AND ACCEPTED IN REVISED FORM 6 NOVEMBER 1991.

tus of diabetes in our country (1). The bulletin gave detailed information on various treatments, diets, physical training, life-style, and education of people with diabetes.

We have limited access to oral hypoglycemic agents from Western pharmaceutical companies. The crystalline insulin that was used is made by Pharmachim of Sofia or Actrapid (Novo, Denmark). Insulins for sustained action are Pharmachim Lente (Bulgaria), Novo Lente–Monotard (Denmark). Patients allergic to insulin medication are treated with monocomponent and human insulin from Novo (Monotard, Actrapid, Protaphan, Actraphan 30/70).

Blood glucose profiles, glucosuria, and in some centers testing of HbA_1 and dosage are used for regular monitoring of patients with diabetes. We do not have enough testing material for the self-monitoring of glycosuria and blood glucose. Both individual and group teaching methods are used; Sofia's Diabetes Centre and the Higher Medical School in Varna offer well-organized educational programs of each variety. Diabetic patients learn about various kinds of therapy, therapeutic diets, side effects of insulin therapy, the significance of physical exercise, related medical and social problems, and other aspects of diabetes care. One year ago, the Association of Diabetic Patients was formed. This year, they have begun publishing a newsletter, *Diabetes*.

A considerable amount of research and development at endocrinology clinics is being devoted to diabetes. Several conventions in Bulgaria dedicated to diabetes brought international participation. Five of the country's clinics have Biostators, which are being used for both research and therapeuty. Several Master's and doctoral theses have focused on diabetes. There are also a few monographs issued in Bulgaria on the topic. At the Institute of Endocrinology, the Medical Academy, and the Institute of Internal Medicine there are some short-term postgraduate courses for physicians exploring the problems of diabetes.

References

1. Gavrailov M, Koev D, Ovtcharova N, Staikov T, Tannev V, Todorov K: The fight against socially significant diseases—diabetes mellitus. *Ministry of Public Health Bulletin 8–9, 1988*
2. Staikov T: *Incidence and Characteristics of Diabetes Mellitus in Bulgaria*. MSc thesis. Institute for Endocrinology, Geriatrics and Gerontology at the Medical Academy of Sofia, Bulgaria, 1972
3. Staikov T: *Incidence, Characteristics and Prognostics of Endocrine Diseases in Bulgaria and Organization of Prevention and Treatment*. PhD thesis. Institute for Endocrinology, Geriatrics and Gerontology at the Medical Academy of Sofia, Bulgaria, 1983
4. Andreiev D: *Diabetes*, Sofia, Bulgaria, Medicina Physcultura, 1978 (monogr.)

Fluctuations in Plasma Proinsulin in an Insulinoma

Implications for Screening Test

ELI IPP, MB
STEPHANIE M. GRIFFITHS, BS
RONALD R. BOWSHER, PHD
RON H. TARRIS, BS
DAO B. ZHOU, MD
MARTA E. TERLECKI, MD

A characteristic feature of many patients with insulin-producing tumors is an elevated concentration of circulating proinsulin (1–4). The measurement of serum proinsulin has been simplified by the development of sensitive radioimmunoassays (RIA; 5–8). It has been suggested that serum proinsulin measurement by RIA may be a useful adjunct in the diagnosis of patients with hypoglycemia resulting from insulin-producing tumors (8,9). We report a patient study in which elevated proinsulin concentrations appeared to be a variable and intermittent phenomenon. The results suggest that evaluation of plasma proinsulin concentrations by size exclusion chromatography and expressing the results as percentage of total insulin immunoreactivity may be misleading and that specific RIA is the preferable approach.

FROM THE DEPARTMENT OF MEDICINE, HARBOR-UCLA MEDICAL CENTER, LOS ANGELES; THE DEPARTMENT OF INTERNAL MEDICINE, KAISER PERMANENTE MEDICAL CENTER, HARBOR CITY, CALIFORNIA; AND THE LILLY LABORATORY FOR CLINICAL RESEARCH, ELI LILLY COMPANY, INDIANAPOLIS, INDIANA.

ADDRESS CORRESPONDENCE AND REPRINT REQUESTS TO ELI IPP, MD, HARBOR-UCLA MEDICAL CENTER, DIVISION OF ENDOCRINOLOGY, 1124 WEST CARSON STREET, TORRANCE, CA 90502.