DIABETES MELLITUS: A MAJOR DISEASE OF OLDER PERSONS

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Editorial

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DIABETES mellitus occurs in approximately 1 in 5 older persons (1). As a group, older persons with diabetes have experienced not only an increase in mortality (2–4) but also a decrease in function and quality of life (5–8). In addition, diabetes in older persons is associated with an increase in falls that result in injury (9). Hyperglycemia is associated with cognitive decline (10,11), and diabetes leads to the development of vascular dementia (12). Diabetes appears to aggravate the age-related decline in cognitive ability (13). Persons with diabetes mellitus are more likely to develop pressure ulcers (14,15) and congestive heart failure (16). Diabetes is a common cause of incontinence and increases the propensity to develop tuberculosis (17). Diabetes is truly a condition that accelerates the development of Isaac’s “giants of geriatrics” in older persons.

In this issue of the Journal, we have included an article by Lai and colleagues (18) showing that in Taiwan, diabetes occurs in more than 20% of persons over 65 years of age. This finding highlights the worldwide epidemic nature of diabetes. It is perhaps appropriate that this report comes from Asia because the first clear report of diabetes was made by Susruta in India in 600 b.c. He described honey urine, which was an attractant to ants. He also distinguished between thin young persons who died quickly (type 1 diabetes) and older obese persons who survived longer (type 2 diabetes). Lai and colleagues (18) reported that obesity was significantly related to diabetes, but others have also shown that a significant proportion of older diabetics are not overweight (6,19).

There is increasing evidence that many older diabetics do not suffer from classic type 2 diabetes. Thin older diabetics have a marked decrease in insulin secretion compared with obese diabetics; also, they do not show increased hepatic glycogenolysis, have less insulin resistance, and have increased non–insulin-mediated glucose uptake by the brain (20). These older diabetics often do not have classic hyperglycemic coma but instead experience a mixed hyperglycemic coma (21). Recently, 10% of older diabetics were shown to have islet antibodies similar to those seen in type 1 diabetics (22). Thus, thin older diabetics have a syndrome intermediate between types 1 and 2 that may appropriately be thought of as type 1 1/2 diabetes (Table 1).

With the availability of newer oral therapeutic agents, it is now possible to obtain good diabetic control in older persons. Most of these newer agents have been demonstrated to be efficacious in older persons and to have few side effects. Two of the thiazolidinediones, troglitazone (23) and rosiglitazone (24), have been demonstrated to be effective monotherapy in older persons. The possibility of liver dysfunction is the major drawback of these agents, which rarely cause hypoglycemia and are potentially ideal oral antidiabetic agents in older persons. The α-glucosidase inhibitor miglitol has been shown to be about half as effective as glyburide in older persons (25). These α-glucosidase inhibitors are believed to produce their improved glycemic response, in part by releasing the incretin (insulin stimulator) glucagon-like peptide 1 (GLP-1). In animals, GLP-1 is equally effective at increasing insulin in young and old rats (26). The lack of hypoglycemia in older persons is offset by an increase in gastrointestinal symptoms. The 25-mg dose three times a day is as effective as the 50-mg dose. Repaglinide, a nonsulfonylurea that increases insulin secretion, is as effective as glyburide in older persons and has approximately the same propensity to produce hypoglycemia (27). Metformin decreased mortality in obese type 2 diabetics in the prospective diabetes study of middle-aged and young-old diabetics in the United Kingdom (28). However, metformin cannot be used in older persons with renal disease or New York Heart Association stage IV cardiac failure, or in persons with acidosis (29). Metformin should be stopped during hospitalization, and persons over 80 years of age most probably should not be given metformin.

Numerous studies have demonstrated that diabetes are more prone to have abnormalities in trace elements (30). Zinc deficiency is particularly common in older persons with diabetes (31); it occurs in diabetics because hyperglycemia results in hyperzincuria (32). Because zinc is important for wound healing, diabetics with either pressure ulcers or vascular ulcers should be given pharmacological zinc replacement.

Chromium deficiency has been associated with abnormalities of carbohydrate metabolism (30). Older persons often have relatively low intakes of chromium. A second article in this issue reports on one of the few carefully conducted trials of chromium picolinate supplementation in older persons (34). This study failed to show improved insulin sensitivity in chromium-supplemented older persons. Carefully conducted negative studies of this kind are extremely important because, as was demonstrated in the January issue of the Journal, use of alternative medicines is extremely important because, as was demonstrated in the January issue of the Journal, use of alternative medicines is
very common in older persons (33). Older persons with diabetes have high levels of depressive symptomatology (35). Rosenthal and colleagues (36) have demonstrated that diabetes have high levels of depressive symptomatology (35). Rosenthal and colleagues (36) have demonstrated that diabetes is a major cause of hospitalization and death in older persons. Aggressive treatment of depression is a key to appropriate management of the older diabetic.

A footnote to the article by Lai and colleagues (18) is that this was the first electronic submission to be received by the Journal. It is hoped that the rapid review and publication of this article will encourage authors to submit their most outstanding work on aging to the Journal.

References


