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Editorial

A Clinical Trial Study on Diabetes Mellitus

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Type 2 Diabetes Mellitus (DM) accounts for more than 90% of all diabetes. This disorder may be a worldwide epidemic affecting an estimate of 366 million adults aged 20-79 years, consistent with data from 2011. The prevalence of this disorder in adult population is predicted to travel from 8.3% to an estimate of 9.9% by 2030, leading to a rise within the number of people with diabetes worldwide up to 552 million.

Unfortunately, many people are unaware that they have diabetes. The proportion is very similar in other Western countries. The disease is usually discovered when the standard symptoms, previously mentioned, are developed and high blood glucose levels are found, defined as a daytime level greater than 200 milligrams per deciliter or a fasting level greater than 120 milligrams per deciliter. In some cases oral glucose tolerance test is required for undiagnosed people.

The relationship between glycemia and therefore the risk of microvascular disease has been well-established. The results of the Diabetes Control and Complications Trial (DCCT), the United Kingdom Prospective Diabetes Study (UKPDS), and the Action in Diabetes and Vascular Disease: Preterax and Diamicron Modified-Release Controlled Evaluation (ADVANCE) Trial, demonstrated that patients with DM treated to lower glycemic targets have reduced rates of microvascular complications (e.g., retinopathy and nephropathy). However, results of more recent trials including ADVANCE, the Action to Control Cardiovascular Risk in Diabetes (ACCORD), and Veterans Affairs Diabetes Trial (VADT) aimed for an A1c <6.0, and ADVANCE aimed for an A1c<6.5%. These and other data have more recently led to a movement away from blanket prescriptive targets for A1C (e.g. <6.5% or <7%) and to the growing consensus among diabetes experts that glycemic targets and glucose-lowering therapies should be individualized. Age, weight, and comorbidities such as established cardiovascular disease, and kidney or liver disease are among the patient's factors that should be considered by physicians, nurses, family, and others. Diet, exercise, and education remain the main stay of treatment for diabetic patients in order to avoid serious complications. In addition, there are several classes of oral antihyperglycemic agents (AHA) available for use as monotherapy or as combination therapy, including the di-peptidylpeptidase (DPP-4) inhibitor class, which is administered either once or twice daily.

In general, medication adherence in chronic diseases, such as diabetes may be low, ranging from 36% to 93%. Side effects associated with oral anti-hyperglycemic agents therapies, including hypoglycemia, (sulfonylureas, meglitinides, insulin), weight gain, (sulfonylureas, meglitinides, insulin, hypersensitivity reactions, thiazolidinediones) and gastrointestinal intolerance, nausea, vomiting (metformin, alpha-glucosidase inhibitors) are common patient-reported reasons for poor medication adherence. Many studies have demonstrated that adherence to anti-hyperglycemic agents therapy is related to the number of pills prescribed: several studies have reported that, when patients were prescribed multiple drugs to treat diabetes, adherence significantly decreased, with reductions ranging from 15% to 54%. A prospective study showed a mean adherence of 79% for a triple-daily regimen, 65% for a twice-daily regimen, and 38% for a thrice-daily regimen. Some data from osteoporosis therapies indicate that, compared to a once-daily regimen, a once-weekly treatment can increase medication adherence and compliance. Therefore, a once-weekly oral AHA therapy might improve treatment adherence in many patients with these metabolic disorders.

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