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# Notes on Diabetes

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## 1. Introduction

Diabetes Mellitus (DM) comprises a heterogeneous group of systemic, chronic diseases of unknown cause, with variable degrees of hereditary predisposition and the participation of various environmental factors that affect the intermediate metabolism of carbohydrates, proteins and fats that they are pathophysiologically associated with a deficiency in the quantity, timing of secretion and/or action of insulin [10]. These defects result in an abnormal elevation of blood glucose after standard glucose loads and even on an empty stomach as there is greater decompensation of insulin secretion [11].

Diabetes is a disorder of metabolism, the process that converts the food we eat into energy. Insulin is the most important factor in this process. During digestion, food is broken down to create glucose, the body's major source of fuel. This glucose passes into the blood, where insulin allows it to enter the cells [12]. (Insulin is a hormone secreted by the pancreas, a large gland located behind the stomach.) In people with diabetes, one of two components of this system fails:

The pancreas produces no or little insulin (Type I); • The body's cells do not respond to the insulin that is produced (Type 2).

DM includes a heterogeneous problem of pathologies, whose common characteristic is the elevation of blood glucose, caused by a defect (complete or not) in the synthesis, secretion and/or action of insulin [12]. The health importance of Diabetes derives from its magnitude, since it is the most common endocrine disease; of its significance, associated with greater morbidity and mortality; its cost, individual and social, and its possibilities of control; prevention of the disease and its complications [13].

In Mexico, Type 2 DM (DM2), classified within the so-called chronic degenerative diseases, is one of the main causes of morbidity and mortality associated with the current economic and social model, with serious repercussions on lifestyle, whose indicators are observed in diet, stress management and sedentary lifestyle, among others [14].

DM is a chronic disease with several implications in the daily lives of people diagnosed with this disease [12]. Health professionals have a duty to monitor diabetes control to ensure that the effectiveness of the prescribed treatment reaches its potential. If the optimal treatment is used correctly by patients, they should achieve better glycemic control, which does not necessarily imply that there will be an increase in the patient's quality of life. Even so, any objective must be periodically evaluated to guide physicians to better target their interventions for the best benefit of the patient [15].

This condition currently affects more than 366 million people in the world and is expected to reach 540 million in 2025. Most cases occur in developing countries [16].

The DM epidemic is recognized by the World Health Organization (WHO) as a global threat. In 2005, 1.1 million deaths due to diabetes were recorded, of which around 80% occurred in low- or middle-income countries, most of which are less prepared to face this epidemic [17].

According to information from the 2006 National Health and Nutrition Survey (ENSANUT), the prevalence increased to 14%, which represents a total of 8 million people with diabetes; in the urban population, the prevalence was significantly higher [18].

In Mexico, DM occupies first place in the number of deaths per year, in both men and women the mortality rates show an increasing trend in both sexes with more than 70 thousand deaths and

400,000 new cases annually. It should be noted that according to the Directorate General Health Information in 2007 there was a greater number of deaths in the group of women (37, 202 deaths) compared to that of men (33, 310), with a rate of 69.2 per 100,000 inhabitants in women and 64 in men, differences important to consider in preventive actions, detection, diagnosis and treatment of this condition [19].

Diabetes is not a cardiovascular risk factor; It is an equivalent of cardiovascular disease because the risk of suffering a cardiovascular outcome is the same as that of ischemic heart disease [19].

Every hour, 38 new cases of diabetes are diagnosed and every two hours, 5 people die due to complications caused by this disease; Of every 100 patients with diabetes, 14 present some kidney complication. 30% of diabetic foot problems end in amputation; out of every five patients with diabetes, 2 develop blindness.

Mexico ranks tenth in global diabetes and it is estimated that by 2030 it will rank seventh. The population in Mexico of people with diabetes fluctuates between 6.5 and 10 million (national prevalence of 10.1% in people between 20 and 79 years old). Mexico ranks tenth in diabetes in the world and it is estimated that by 2030 it will have seventh place [19, 20].

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