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GLUCOSE DYNAMICS IN INDIVIDUALS WITH DIFFERENT DEGREES OF GLUCOSE TOLERANCE

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Background: Prediabetes (PDM), a high-risk state for the development of diabetes (DM), isdefined by glycemic status higher than normal, but lower than diabetes thresholds. It is associated with simultaneous presence of insulin resistance and beta-cell dysfunction and it has been related to a higher risk for development of early forms of diabetes complications. Part of the patients with prediabetes will progress to diabetes, with the same proportion converting back to normoglycemia. Objective: To study changes in glucose tolerance status and its determinants in patients followed in the Prediabetes and Metabolic Syndrome clinic. Methods: In a cohort retrospective study, we evaluated the changes in glucose tolerance in a group of patients over time and the factors that may have contributed to transition or persistence of glucose tolerance status. These patients were also evaluated for clinical, anthropometrical and laboratorial factors. Glucose tolerance status was determined by two-hour oral glucose tolerance tests (OGTT 75g) and classified accordingly to American Diabetes Association (ADA) criteria. Pancreatic beta-cell function was estimated by insulinogenic index. Insulin sensibility was evaluated by 1/insulin Matsuda and Stumvoll insulin sensitivity indexes. The research protocol was approved by Hospital de Clínicas de Porto Alegre IRB and all participants gave written informed consent. ANOVA test was applied to compare continuous variables with normal distribution and Chi-squared test, to compare categorical variables. $p < 0.05$ was considered statistically relevant. Results: Patients (n=30, age 50.7 ± 13.0 years, 66.7% women, 86.7% white) referred for determination and management of glucose tolerance status at Endocrinology Division of Hospital de Clínicas de Porto Alegre were included and followed by median time of 17.9 months (P25-P75 5.1 – 27.8). Initially, there were 6 normoglycemic patients (NGT; 20.0%), 13 prediabetics (PDM; 43.3%) and 11 diabetics (DM; 36.6%). As a result, 3 (50.0%) of initial NGT patients remained NGT and 3 (50.0%) became PDM. Of initial PDM patients, 4 (30.8%) reverted to NGT, 8 (51.5%) remained PDM and 1 (7.7%) progressed to DM. Of initial DM patients, 6 (54.5%) reverted to PDM and 5 (45.5%) remained DM. From 30 patients, 10 (33.0%) reverted to a better glucose tolerance status. Patients were also evaluated for glucose homeostasis-related factors. Five-percent weight loss or basal insulin sensitivity or pancreatic beta-cell function were not significantly associated with better prognosis (maintenance of normoglycemia or reversion to a better glucose tolerance degree). Conclusion: A significant portion of participants change their glycemic status to a reversion of glucose tolerance abnormalities. Number of Project Approval: 09194. Ethics Committee Responsible: Comitê de Ética em Pesquisa (CEP), credenciado junto à Comissão Nacional de Ética em Pesquisa (CONEP) do Ministério da Saúde e ao Office for Human Research Protection (OHRP) dos Estados Unidos.