LETTER TO THE EDITOR

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Other Diagnostic Tests for Young-Onset Type 2 Diabetes Mellitus

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We have read with interest the article entitled "A Cross-sectional Study to Evaluate Beta Cell Function in Individuals with Newly Diagnosed Young-Onset Type 2 Diabetes Mellitus and its Complications,"[1] elevated C-peptide levels are indicative of both insulin resistance and beta cell malfunction. These factors are directly linked to the development of complications associated with young-onset Type 2 Diabetes Mellitus (YO-T2DM), including obesity, hypertension, and diabetic kidney disease. The present letter aims to expand the current diagnostic testing options for early detection of YO-T2DM.

The article of Virostko[2] mentions that magnetic resonance (MR) has demonstrated its usefulness as a technique for image analysis that can accurately characterize the heterogeneity of the pancreas among patients with Type 1 and 2 Diabetes Mellitus, where excess pancreatic fat affects its complex structure, ranging from the pancreatic duct network to the islets of the acinar cells. This would be an indicator of decreased beta cell function, which correlates with T2DM. It should be emphasized that this test is more expensive, but with greater specificity for early diagnosis and reduces the risk of future complications.

Genetic testing is also available for the early diagnosis of YO-T2DM. As observed in the article by Wiebe et al.,[3] the sequence of genes such as TCF7L2, KNCJ11 and PPARG1 are predictors for the development of YO-T2DM. The first gene (TCF7L2) encodes insulin-related proteins, which showed great association with the development of YO-T2DM. The PPARG gene, which is related to adipogenesis and insulin resistance, showed a direct association with YO-T2DM. The KNCJ11 gene encodes beta-cell potassium channel receptors associated with sulfonylurea SUR1 receptors, associated with the development of YO-T2DM. Thus, these genetic sequences could provide specific coding that evidences the risk of developing YO-T2DM because they are directly related to the regulation of glucose metabolism, insulin resistance and beta cell function. The disadvantage, however, is that this type of diagnosis is more expensive, but provides greater specificity.

Epidemiological studies reveal a concerning rise in YO-T2DM prevalence in Southeast Asia, increasing from 0.19% (2007) to 0.43% (2018).[4] Combining multiple assessment methods could provide a more complete understanding of beta cell functionality in this population. Thus, the implementation of updated diagnostic methods, such as MRI and genetic testing, represents a crucial advance in the diagnosis of patients with YO-T2DM. These tools facilitate a more accurate diagnosis to facilitate early intervention, which helps circumvent serious complications in the future and optimize the quality of life of these individuals.

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All authors certified fulfillment of ICMJE authorship criteria.

CRediT Author Statement
KHC: Conceptualization, Methodology, Validation, Investigation, Writing – original draft preparation, Writing – review and editing, Visualization, Supervision, Project administration; **JPV:** Conceptualization, Methodology, Validation, Investigation, Writing – original draft preparation, Writing – review and editing, Visualization, Supervision, Project administration; **ASC:** Conceptualization, Methodology, Validation, Supervision, Project administration.

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