

Differential Manifestation of Type 2 Diabetes in Black Africans and White Europeans with New-Onset Type 2 Diabetes: Advocating for African-Specific Diabetes Treatment Guidelines

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Abstract

Background: Type 2 Diabetes (T2D) is characterised by marked heterogeneity in clinical presentation, progression, and therapeutic response to glucose-lowering therapies. Data comparing the phenotypic characteristics and atypical diabetes subtypes in native Black Africans and White populations with new-onset diabetes is limited.

Objective: This systematic review aimed to compare the phenotypic characteristics of native Black Africans and White Europeans with recently diagnosed T2D to inform African-specific diabetes management guidelines.

Methods: We searched Medline, EMBASE, CINAHL, Google Scholar, African Index Medicus, and Global Health for studies reporting information on phenotypic characteristics in Black Africans and White Europeans with recently diagnosed T2D. We also described three atypical diabetes subtypes largely described in patients of African ancestry.

Results: A total of 28 studies were included in the systematic review (14 studies conducted on 2,586 Black Africans in eight countries and 14 conducted on 279,621 White Europeans in nine countries). Compared with White Europeans, Black

Africans had a lower pooled mean age (49.4 ± 4.4 years vs. 61.3 ± 2.7 years), Body Mass Index [BMI] (26.1 ± 2.6 kg/m² vs. 31.4 ± 1.1 kg/m²), and a higher pooled median glycated haemoglobin (9.0 [8.0-10.3] % vs. 7.1 [6.7-7.7] %). Ugandan and Tanzanian participants had lower markers of beta-cell function and insulin resistance when compared with four White European populations. We also report three atypical diabetes subtypes, i.e., lean T2D, ketosis-prone diabetes, and fibro calculous pancreatic diabetes, described widely in patients of African ancestry. These three subtypes exhibit distinct phenotypic features such as low markers of adiposity, metabolic syndrome, and pancreatic beta-cell secretory function.

Conclusion: These findings provide evidence of the ethnic differences in the manifestation of T2D (early onset of T2D at lower BMI levels with severe hyperglycaemia and predominance of beta-cell dysfunction in some African populations). This underscores the need to formulate African-specific approaches for managing and preventing T2D.

Key words: Type 2 Diabetes, Phenotypic characteristics, Systematic review