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# Frequency of iron deficiency anemia in type 2 diabetes - Insights from tertiary diabetes care centres across India

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## Abstract

**Aim:**To study the frequency of iron deficiency anemia (IDA) in individuals with type 2 diabetes mellitus (T2DM) seen at tertiary diabetes care centres across India.

**Methods:**This is a retrospective study (January 1, 2017-December 31, 2019), which included 1137 individuals with T2DM, aged ≥18 years, for whom data on glycemic, lipid and haematological parameters were available. Anthropometric measurements were done using standardized techniques. Biochemical investigations included fasting plasma glucose[FPG], post prandial plasma glucose, HbA1c, lipids and serum ferritin and iron wherever feasible.

**Results:**Of the 1137 individuals included for the study, 117 (10.3%) were categorized as no 'iron deficiency' (ID) group [normal hemoglobin: male ≥13 g/dl, female ≥12 g/dl and normal serum ferritin ≥70 μg/L], 123 (10.8%) as ID group [normal hemoglobin and low serum ferritin <70 μg/L)], 447 (39.3%) as IDA group [low haemoglobin: male <13 g/dl, female <12 g/dl and low serum ferritin] and 450 (39.6%) as 'anemia of chronic disease' (ACD) group [low hemoglobin and normal serum ferritin]. The percentage of women having ID (57.7%) and IDA (65.3%) was significantly higher than their male counterparts. ID was most prevalent (61.7%) in the individuals with duration of diabetes <5 years whereas ACD was most prevalent (50.5%) in individuals with long standing diabetes (>10 years). Independent risk factors for IDA were female gender (OR 3.3,95% CI:1.75-6.23, p < 0.001), duration of diabetes (OR 1.05, 95% CI 1.01-1.11, p = 0.028) and FPG (OR 1.01, 95% CI 0.99-1.00, p = 0.018).

**Conclusions:**There is a need of identifying and monitoring iron status and anemia in patients with T2DM.

**Keywords:**Anemia; Ferritin; India; Iron deficiency; Type 2 diabetes.