STUDENTS' CORNER
LETTER TO THE EDITOR

Targeting HbA1c: A strategy for cardiovascular disease prevention

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Dear Editor, HbA1c, also referred to as glycated haemoglobin, is formed when glucose present in blood combines with haemoglobin present in red blood cells. Blood HbA1c levels are used to establish the mean blood glucose levels for the past two to three months which assists in diagnosing, management, and monitoring type 1 diabetes as well as type 2 diabetes.[1] Elevated HbA1c levels have adverse effects on the body, including dyslipidaemia, hypertension along with an increase in C-reactive protein, oxidative stress and blood viscosity; all these factors play a significant role in development of cardiovascular diseases (CVD) such as coronary heart disease (CHD) and coronary artery disease (CAD).[2] Uncontrolled diabetes significantly increases the risk of cardiovascular disease.

Over the years, several studies have been done to determine the value of HbA1c pertaining to the high risk of developing cardiovascular diseases, and the results of these studies have been variable. In 2013, Pai et al. found that there is a significantly elevated risk of CHD across nondiabetic women and men with HbA1c levels of ≥5.5%.[3] Another study conducted in 2013 found that the participants with >6.0% had a considerably higher hazard ratio for mortality from CVD than those with <5.0%.[4] In 2021, Liu et al. identified a U-shape association between HbA1c and long-term all-cause mortality among individuals with CAD, implying that patients with CAD who exhibit extremely low blood HbA1c levels also have a poor prognosis; these patients may have a better prognosis by ideally maintaining HbA1c levels between 5.7% and 6.7%.[5] A 2023 research established that a mean HbA1c of 7·86% (7·66% - 8·06%) had the lowest risk of death with a Hazard ratio of 0·63 (0·42-0·95)[6] which is markedly higher than percentages stated in the above-mentioned studies.

Pakistan has an estimated diabetes prevalence of 30.8%, which is the highest worldwide.[7] As discussed earlier, high HbA1c levels can lead to adverse cardiovascular outcomes, thus, it is important for diabetic patients to maintain their HbA1c levels according to values provided in recent studies. Moreover, even non-diabetic individuals should monitor their blood glucose levels as studies have shown that low levels of HbA1c can also have adverse cardiovascular outcomes. Patients should be educated on the importance of maintaining optimal HbA1c levels to prevent development of potentially fatal cardiovascular diseases.

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