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Letter to the Editor

The changes of oxidative stress markers and Vitamin E in patients with diabetes using SGLT2 inhibitors

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Dear Editor,

I read, reviewed carefully, and meticulously the article published by Banu Buyukaydin et al., in which the authors aimed to show changes in oxidative stress and vitamin E in diabetes using an SGLT2 inhibitor. Int J Med Biochem 2023;6(3):185-190. They concluded their evaluation of the antioxidant properties of SGLT2 inhibitors along with oxidative stress markers. I want to congratulate the authors for this research publication and want to contribute by emphasizing a few important points of this study.

First, this original study includes the measurement of oxidative stress markers and antioxidants like vitamin E (non-enzymatic) and catalase (enzymatic). As catalase was measured by a colorimetric method, the author can add the word "antioxidants" to the title instead of only "vitamin E," which is a non-enzymatic marker. According to the study, both antioxidants do not show a significant relationship with or without an SGLT2 inhibitor, yet catalase has proven to be a better enzymatic marker to study antioxidant status. Otherwise, if the patient is treated with vitamin E supplements, then only vitamin E measurement is sufficient to study changes in diabetes, and catalase measurement can be avoided.

Second, if total oxidant status (TOS) and total antioxidant status (TAS) were measured along with oxidative stress index (OSI), myeloperoxidase, vitamin E, and catalase measurement was just an addition of tests and even the study shows all these do not show a significant relationship in the study population.

Third, HbA1c values mentioned in "Table 1" of the article show a mean value of 7.1% and in "Table 2," without an SGLT2 inhibitor, it was 7.0%, and with an SGLT2 inhibitor, it was 7.2%. "Table 1" does not mention the mean value of glucose. Also, blood glucose and HbA1c mean values show a positive correlation but +1% is not such a big significant difference. The study explains the reason for the reduction in HbA1c concentration is increased glucose excretion, but that could be a sign of diabetic nephropathy, which should also be taken into consideration by the author. WHO criteria for diabetes for HbA1c need to be considered if a baseline study was not done [1].

Fourth, the study needs to emphasize other factors like the duration of the disease and comorbidities if any, because, as mentioned, the mean age of the study population was 55.7 years, the duration of the disease and comorbidities could affect this age group and may result in a non-significant relationship with study objectives [2]. Also, the adverse effect of an SGLT2 inhibitor in a patient on diuretics may lead to osmotic diuresis, though it is rare yet to be considered [3].

Fifth, a patient on only antidiabetics drug like metformin may not be considered; ADA criteria equally have importance for diabetic patients because many young women on metformin for the treatment of Polycystic Ovarian Disease (PCOD) [2].

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