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PEER-REVIEW REPORT

Name of journal: World Journal of Diabetes

Manuscript NO: 41868

Title: Update on biomarkers of glycemic control

Reviewer's code: 02592123

Reviewer's country: Saudi Arabia

Science editor: Ruo-Yu Ma

Date sent for review: 2018-09-12

Date reviewed: 2018-09-20

Review time: 8 Days

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	[ ] Accept (High priority)	Peer-Review:
[Y] Grade B: Very good	[Y] Grade B: Minor language polishing	[ ] Accept (General priority)	[Y] Anonymous
[ ] Grade C: Good	[ ] Grade C: A great deal of language polishing	[Y] Minor revision	[ ] Onymous
[ ] Grade D: Fair	[ ] Grade D: Rejection	[ ] Major revision	Peer-reviewer's expertise on the topic of the manuscript:
[ ] Grade E: Do not publish		[ ] Rejection	[ ] Advanced
			[Y] General
			[ ] No expertise
			Conflicts-of-Interest:
			[ ] Yes
			[Y] No

SPECIFIC COMMENTS TO AUTHORS

In this review, the authors discussed the merits and demerits of four biomarkers including HbA1c, fructosamine, 1,5-anhydroglucitol and direct glucose analysis for measuring the glycemic control. The review appears to be quite comprehensive and includes pertinent literature. The text flow is optimal except a few minor modifications

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need to be performed. • Page 6: Please rephrase the last sentence "The comparison between……..as previously evidenced" for correctness. • Page 7: Please use decimal (.) instead of comma (,) in numerical values. Please follow the same rule elsewhere in the text. • HbA1c is still the most commonly used biomarker for testing the glycemic control. This marker has also been suggested for the screening of diabetes. Most of the text under HbA1c heading is somehow pertaining to its demerits. I would suggest modifying the text by including relevant literature on the advantages of HbA1c as well. Some core literature on fructosamine and continuous glucose monitoring is also missing. The authors may include the following literature for more updated information. 1. Simó-Servat O, Planas A, Ciudin A, Simó R, Hernández C. Assessment of advanced glycation end-products as a biomarker of diabetic outcomes. Endocrinol Diabetes Nutr. 2018 Aug 1. pii: S2530-0164(18)30153-8. 2. Chiu CJ, Rabbani N, Rowan S, Chang ML, Sawyer S, Hu FB, Willett W, Thornalley PJ, Anwar A, Bar L, Kang JH, Taylor A. Studies of advanced glycation end products and oxidation biomarkers for type 2 diabetes. Biofactors. 2018 May;44(3):281-288. 3. Chan CL, Hope E, Thurston J, Vigers T, Pyle L, Zeitler PS, Nadeau KJ. Hemoglobin A(1c) Accurately Predicts Continuous Glucose Monitoring-Derived Average Glucose in Youth and Young Adults With Cystic Fibrosis. Diabetes Care. 2018 Jul;41(7):1406-1413. 4. Dozio E, Corradi V, Proglio M, Vianello E, Menicanti L, Rigolini R, Caprara C, de Cal M, Corsi Romanelli MM, Ronco C. Usefulness of glycated albumin as a biomarker for glucose control and prognostic factor in chronic kidney disease patients on dialysis (CKD-G5D). Diabetes Res Clin Pract. 2018 Jun;140:9-17. 5. Wang Y, Bai Y, Yang R, Song Y. Serum 1,5-Anhydroglucitol Concentrations Remain Valid as a Glycemic Control Marker In Diabetes with Earlier Chronic Kidney Disease Stages. Exp Clin Endocrinol Diabetes. 2017 Dec 21. doi:10.1055/s-0043-122142. 6. Shohat N, Tarabichi M, Tischler EH, Jabbour S, Parvizi J. Serum Fructosamine: A Simple and Inexpensive Test for Assessing Preoperative

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Glycemic Control. J Bone Joint Surg Am. 2017 Nov 15;99(22):1900-1907. 7. Ruedy KJ, Parkin CG, Riddlesworth TD, Graham C; DIAMOND Study Group. Continuous Glucose Monitoring in Older Adults With Type 1 and Type 2 Diabetes Using Multiple Daily Injections of Insulin: Results From the DIAMOND Trial. J Diabetes Sci Technol. 2017 Nov;11(6):1138-1146. 8. Malkoc A, Probst D, Lin C, Khanwalker M, Beck C, Cook CB, La Belle JT. Enhancing Glycemic Control via Detection of Insulin Using Electrochemical Impedance Spectroscopy. J Diabetes Sci Technol. 2017 Sep;11(5):930-935. 9. Yeoh E, Lim BK, Fun S, Tong J, Yeoh LY, Sum CF, Subramaniam T, Lim SC. Efficacy of self-monitoring of blood glucose versus retrospective continuous glucose monitoring in improving glycaemic control in diabetic kidney disease patients. Nephrology (Carlton). 2018;23:264-268. 10. Chan CL, Pyle L, Kelsey MM, Newnes L, Baumgartner A, Zeitler PS, Nadeau KJ. Alternate glycemic markers reflect glycemic variability in continuous glucose monitoring in youth with prediabetes and type 2 diabetes. Pediatr Diabetes. 2017 Nov;18(7):629-636. 11. Blecker S, Park H, Katz SD. Association of HbA1c with hospitalization and mortality among patients with heart failure and diabetes. BMC Cardiovasc Disord. 2016 May 20;16:99. 12. Sonoda R, Tanaka K, Kikuchi T, et al. C-Peptide Level in Fasting Plasma and Pooled Urine Predicts HbA1c after Hospitalization in Patients with Type 2 Diabetes Mellitus. PLoS One. 2016 Feb 5;11(2):e0147303. 13. Cahill AG, Tuuli MG, Colvin R, Cade WT, Macones GA. Markers of Glycemic Control and Neonatal Morbidity in High-Risk Insulin-Resistant Pregnancies. Am J Perinatol. 2016;33:151-6. 14. Sherwani SI, Khan HA, Ekhzaimy A, Masood A, Sakharkar MK. Significance of HbA1c Test in Diagnosis and Prognosis of Diabetic Patients. Biomark Insights. 2016;11:95-104. 15. Lee JE. Alternative biomarkers for assessing glycemic control in diabetes: fructosamine, glycated albumin, and 1,5-anhydroglucitol. Ann Pediatr Endocrinol Metab. 2015 Jun;20(2):74-8. 16. Fukami K, Shibata R, Nakayama H, Yamada K, Okuda S, Koga M. Serum albumin-adjusted

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glycated albumin reflects glycemic excursion in diabetic patients with severe chronic kidney disease not treated with dialysis. J Diabetes Complications. 2015 Sep-Oct;29(7):913-7. 17. Alonso-Fernández M, Mancera-Romero J, Mediavilla-Bravo JJ, Comas-Samper JM, López-Simarro F, Pérez-Unanua MP, Iturralde-Iriso J; Work Group of Diabetes SEMERGEN (Sociedad Española de Médicos de Atención Primaria). Glycemic control and use of A1c in primary care patients with type 2 diabetes mellitus. Prim Care Diabetes. 2015 Oct;9(5):385-91. 18. Khan HA, Ola MS, Alhomida AS, Sobki SH, Khan SA. Evaluation of HbA1c criteria for diagnosis of diabetes mellitus: a retrospective study of 12 785 type 2 Saudi male patients. Endocr Res. 2014;39:61-5. 19. Ahmad Khan H. Clinical significance of HbA1c as a marker of circulating lipids in male and female type 2 diabetic patients. Acta Diabetol. 2007;44:193-200. 20. Khan HA, Sobki SH, Alhomida AS. Fluctuations in fasting blood glucose and serum fructosamine in pregnant women monitored on successive antenatal visits. Clin Exp Med. 2006;6:134-7.

INITIAL REVIEW OF THE MANUSCRIPT

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[Y] No

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PEER-REVIEW REPORT

Name of journal: World Journal of Diabetes

Manuscript NO: 41868

Title: Update on biomarkers of glycemic control

Reviewer's code: 03356217

Reviewer's country: Italy

Science editor: Ruo-Yu Ma

Date sent for review: 2018-09-12

Date reviewed: 2018-10-01

Review time: 19 Days

SCIENTIFIC QUALITY	LANGUAGE QUALITY	CONCLUSION	PEER-REVIEWER STATEMENTS
[ ] Grade A: Excellent [Y] Grade B: Very good [ ] Grade C: Good [ ] Grade D: Fair [ ] Grade E: Do not publish	[ ] Grade A: Priority publishing [ ] Grade B: Minor language polishing [Y] Grade C: A great deal of language polishing [ ] Grade D: Rejection	[ ] Accept (High priority) [ ] Accept (General priority) [Y] Minor revision [ ] Major revision [ ] Rejection	Peer-Review: [Y] Anonymous [ ] Onymous Peer-reviewer's expertise on the topic of the manuscript: [Y] Advanced [ ] General [ ] No expertise Conflicts-of-Interest: [ ] Yes [Y] No

SPECIFIC COMMENTS TO AUTHORS

The manuscript presents a narrative review focused on the state of the art on the use of non-traditional glycaemic markers in comparison to the well-established markers such as HbA1c or glucose-based measures. Overall, the manuscript described the use of non-traditional biomarkers of glucose homeostasis in details. A main comment on the

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paragraph Fructosamine and glycated albumin: Authors comment the use of these two biomarkers but they didn't underlie the differences between them. Fructosamine and glycated albumin reflect distinct glucose measures and they are measured with different analytical methods. These differences, together with the clinical implications, should be described in details. Probably, different paragraphs for each biomarker can be useful to highlight these differences. Moreover, a significant body of evidence is not considered in the text. For example, GA has been tested in relation to diabetes diagnosis and preliminary studies suggest that it can reliably document the efficacy of anti-diabetic therapy preceding the decrease of HbA1c (Bellia C et al. Clin Biochem. 2018;54:68-72. Lu JM et al. J Diabetes Complications. 2016;30(8):1609-1613). Moreover, the distribution of GA in healthy subjects has been described in several population [Bellia C et al, Clin Chem Lab Med. 2017 Nov 27;56(1):120-125. Araki T et al. J Diabetes Investig. 2012 Dec 20;3(6):492-7]. These aspect should be considered in the text. Minor comment: careful English language editing as well as scientific language editing would be necessary to ensure that all points come across as intended.

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