

Blood Viscosity, Lipid Profile and Lipid Peroxidation in Type-1 Diabetic Patients with Good and Poor Glycemic Control: The Promise and Reality

Ezekiel Uba Nwose

School of Psychological and Clinical Sciences, Yellow 2.2.58 Casuarina Campus, Charles Darwin University, Darwin, NT0909, Australia

Address for correspondence: Dr. Ezekiel Uba Nwose, School of Psychological and Clinical Sciences, Yellow 2.2.58 Casuarina Campus, Charles Darwin University, Darwin, NT0909, Australia. E-mail: uba.nwose@cdu.edu.au

This issue of the journal brings a paper with strong perspective in practice – “Blood Viscosity, Lipid Profile, and Lipid Peroxidation in Type-1 Diabetic Patients with Good and Poor Glycemic Control.”^[1] Patients with diabetes show lipid disorders that promote atherogenesis, which in turn feed forward to cardiovascular disease (CVD) complications. Though the pathophysiology of these dyslipidemia is not totally explained, hyperglycemia and peripheral hyperinsulinemia are deemed to play a role. For instance, insulin has an antilipolytic action as well as the potential to promote storage of triglycerides. Hence, it is necessary to pay attention to lipid profile abnormalities in patients with type 1 diabetes in order to reduce CVD complications.^[2] In referring to diabetes in this context, it is regardless whether patient is type 1 or type 2, because the biochemistry and physiology in either type has CVD implications and associated with lipid oxidation and viscosity of blood.

It has been reported that erythrocytes from type 1 diabetes patients have increased membrane lipid peroxidation associated with composition and function of lipid profile, including that only individuals who do not respond to supplementation have low serum lipids.^[3] That is, individuals who are not at risk of lipid

peroxidation vis-à-vis oxidative stress may not show remarkable response to antioxidant. Indeed, blood viscosity in diabetic type 1 children show a trend of increasing compared with apparently healthy individual; as well as positive relationship with blood pressure.^[4]

Antioxidants in supplements or medical nutritional therapies are commonly used in diabetes management. However, discretion is required to avoid a paradoxical adverse effect. A “perspective in practice” papers has been previously published on this journal indicating that some guideline recommendations are yet to be adopted in clinical practice; and emphasized that since antioxidant supplement is also an alternative to aspirin and influences whole blood viscosity (WBV), there is a need to raise awareness for laboratory monitoring to be followed.^[5]

Thus, the promise of the blood viscosity, lipid profile and lipid peroxidation in type-1 diabetic patients with good and poor glycemic control report is in its perspective in practice. It is known that like any other pharmacotherapeutic, antiplatelets have a safety concern. Aspirin is still one of the main therapies in diabetes management and its effect is modulated by WBV, which in turn is influenced by antioxidant nutritional therapy. Utilizing the available clinical laboratory tests to determine lipid peroxidation status in patients during dietician’s assessment would be keeping with guidelines. Determining WBV levels would be invaluable to optimize medical nutrition outcomes, in addition to keeping with the guidelines for antiplatelet therapy. However, the reality is that test methods for lipid peroxidation have yet to be available to most diagnostic pathology settings and also yet to be validated for diagnostic use.

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References

1. Mishra N, Singh N. Blood viscosity, lipid profile and lipid peroxidation in type-1 diabetic patients with good and poor glycemic control. *N Am J Med Sci* 2013;5:562-6.
2. Vergès B. Lipid disorders in type 1 diabetes. *Diabetes Metab* 2009;35:353-60.
3. Manuel y Keenoy B, Shen H, Engelen W, Vertommen J, van Dessel G, Lagrou A, *et al.* Long-term pharmacologic doses of vitamin E only moderately affect the erythrocytes of patients with type 1 diabetes mellitus. *J Nutr* 2001;131:1723-30.
4. Vázquez BY, Vázquez MA, Jáquez MG, Huemoeller AH, Intaglietta M, Cabrales P. Blood pressure directly correlates with blood viscosity in diabetes type 1 children but not in normals. *Clin Hemorheol Microcirc* 2010;44:55-61.
5. Nwose EU, Butkowski E, Cann N. Whole blood viscosity determination in diabetes management: Perspective in practice. *N Am J Med Sci* 2009;1:110-3.

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