Review of: "Reduced Blood to Brain Glucose Transport as The Cause For Hyperglycemia: a Model That Resolves Multiple Anomalies in Type 2 Diabetes"

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The human central nervous system (CNS) is highly irrigated by blood and the main fuel of neurons in the CNS is glucose. Therefore, the amount of glucose that reaches the brain via blood is quite significant. The article by Akanksha Ojha and Milind Watve presents a model by which hypergycemia could be derived from reduced flux of blood to the brain. This idea is worth being considered despite if confirmed by experimental means, may not be a model valid for all type 2 diabetes cases; in fact the causes of type 2 diabetes are multifactorial. In addition there are sedentary people that without performing higher functions requiring high amounts of glucose consumption by neurons in the CNS remain normoglycemic.

A word concerning the title, neither the model presented nor any oher model can “Resolve Multiple Anomalies in Type 2 Diabetes”. The title must be modified, the model cannot solve anomalies and cannot expain all type 2 diabetes cases. Certainly, it is attractive the hypothesis that a reduction of blood flow may lead, in some individuals, to type 2 diabetes. The model is complex and some of the figures are difficult to understand; I suggest to redo some and to eliminate some plus explaining a little bit more in the text. The model looks good and I am not myself, expert in how to implement such a model, i.e. I have to assume that the equations used are correct. However I miss dynamic aspects and also I miss what the model predicts when a given individual without diabetes enters or exits a period of intense brain activity? Similarly, what the model predicts when a given individual with type 2 diabetes enters or exits a period of intense brain activity? How periods of brain activity would affect an individual depending on whether he/she is diabetic or not? Do the model predict that intense brain activity would reduce (without medication) hyperglycemia in type 2 diabetic individuals?