Reviewer’s report

Title: Association between Na+K+-ATPase activity and some lipid metabolites in insulin dependent diabetic patients from Lagos, Nigeria.

Version: Date: 25 March 2007

Reviewer: Muthuswamy Balasubramanyam

Reviewer’s report:

General
Na/K ATPase is central to the proper ionic homeostasis of the cellular system and it has been well demonstrated that there is an impairment of its activity related to hyperglycemic milieu and diabetic complications. The strength of the manuscript is the elaborate review of literature as evident from the introduction and discussion. At the same time, extensive work done in this area of specialization as indicated by the authors too, question the originality, innovation, novelty of the present findings.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1. An association of impairment of Na/K ATPase activity in hypertension, Type 1 diabetes, Type 2 diabetes, situations connected with neuronal dysfunction, diabetic nephropathy, retinopathy and lipid abnormalities were widely known in the literature. Except that the association has been replicated in Nigerian patients, the manuscript lacks originality and innovation.

2. Authors refer ATPase activity in the presence of EGTA as ‘Total Na/K ATPase activity’. This is not the usual case. In general, digoxin- (or ouabain) inhibited component of the activity is computed as Na/K ATPase activity.

3. Since the study is a cross-sectional one, the cause-and-effect relationship between cholesterol and impaired Na/K ATPase can not be extrapolated to the cardiovascular risk parameters. Authors should discuss about this.

4. A main claim in this manuscript was that there is an association between Na/K ATPase activity and lipid metabolites. However, the results did not support this claim. In Table 4, none of the individual lipid parameters showed significant correlation with Na/K ATPase activity (column where all patients data appear).

5. Considering the small sample size in the study and the specificity and sensitivity of the Na/K ATPase assay, ‘r’ and ‘p’ values reported for A1 group is phenomenally and non-biologically significant. Authors should provide a graph showing the individual points of Na/K ATPase measurements and correlations with glycemic and lipid parameters.

6. In the study design, the proper diagnosis criteria of Type 1 diabetes were not given. IDDM is an old terminology and the patients should be refered to as ‘Type 1 diabetes’ throughout the manuscript.

7. One of the explanations for the impaired Na/K ATPase and poor glycemic control connection could be due to oxidative stress. Authors should refer to the publication by Sampathkumar et al 2005 and discuss this.

8. There was a discrepancy in reporting the numerals, particularly in Table 3 (page 22). What is 182.7?

9. Table 4 appears to be a Pearson correlation analysis, not a multivariate regression analysis.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Minor:
1. There was no detail on associated complications such as blood pressure etc.

2. Replace ‘microle’ to micromole, wherever it is.

3. Both introduction and discussion are too lengthy and not exactly highlighting the results related to the work.

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

'I declare that I have no competing interests'