Reviewer’s report

Title: Diagnostic criteria for diabetes revisited: Taking advantage of sensitivity and specificity of current cut-offs

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Reviewer: Dr David Schriger

Level of interest: A paper of limited interest

Advice on publication: Accept after discretionary revisions

This paper provides a nice review of issues regarding the diagnosis of diabetes. At present, in the absence of strong evidence documenting the superiority of any particular measure (FPH, SHPG, or HBA1C) in predicting complication of DM, the field is suffering with the chicken and the egg problem. Various authors have compared two of the metrics to see which bests predicts the third, all documenting that the three seem to be measuring similar, but somewhat different things. This paper suggests that FPG and 2hPG should be used together to define normal, IGT and DM. Unfortunately, with only 44 patients, cannot possibly add any meaningful information given the existence of large, databases such as NHANESIII which have the advantage of random stratified sampling of large populations. The authors’ conclusions are a bit overwrought considering the sample size. They must be reined in to reflect the size of the sample.

Apart from the sample size issue, the paper is generally well done, with the introduction and discussion being its strengths.

With respect to the introduction, since they are using A1C as their criterion standard, the authors might discuss why they do not consider abandoning the FPG and 2hPG and just using the A1C as the definitive test.

Other comments:

1) This is a descriptive study. As Rothman (former editor of Epidemiology) notes "p-values confound sample size and magnitude of effect." You paper would be strengthened by the removal of all p-values and references to statistical significance and the addition of confidence intervals for important estimates.

2) With only 44 patients, you should strongly consider showing by-patient data or at least distributions (box-plots or histograms) rather than bar graphs. Scatterplots that show all three values might also be considered. This will give readers much more information about the relation of the tests.
3) Can you better describe the population? Why were they referred for testing?

4) Why did you choose to report data on 44 patients?

5) Drop the pie chart. The information can be conveyed in one sentence.

**Competing interests:**

None declared.