Reviewer's report

Title: Utility of Serum IGF-1 for Diagnosis of Growth Hormone Deficiency Following Traumatic Brain Injury and Sport-related Concussion

Version: 0 Date: 26 Dec 2017

Reviewer: Randall J. Urban

Reviewer's report:

General: This manuscript presents a retrospective comparison of IGF-1 values correlated with the resulting GH stimulation test to determine the diagnostic value of an IGF-1 in diagnosing GH deficiency in patients after a TBI. The patients had a range of TBI from mild to severe.

Major:

1. This work compares mainly with our previous study. The major difference between the two is that the authors in this study used IGF-1 normal reference ranges to assign a z score and used this for the ROC analysis. I would prefer to see the ROC analysis on the actual IGF-1 values. Because IGF-1 is such a non-specific value, the arbitrary assignment of normal ranges may further dilute this analysis.

2. Since our work was only on TBI patients with moderate to severe TBI it would be worthwhile to do a ROC analysis on only the mTBI patients using the actual IGF-1 values.

Minor:

Our previous study's intent was to help the clinician use the IGF-1 to determine whether to pursue a work up of GH deficiency with a stimulation test, not to use IGF-1 to diagnose GH deficiency.

Are the methods appropriate and well described?

If not, please specify what is required in your comments to the authors.

Yes
Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:
Acceptable

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