Author’s response to reviews

Title: Clinical features and dysfunctions of iron metabolism in Parkinson disease patients with hyper echogenicity in substantia nigra: a cross-sectional study

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Editor Comments:
1. **Conclusions:**

Please add a “Conclusions” section after the “Discussion” section. This should state clearly the main conclusions of the research article and give a clear explanation of their importance and relevance.

We have added a “conclusions” section, please see page 11-12, line 294-308:

“PD patients with hyper echogenicity in SN have older age, more advanced disease stage, more severe motor non-motor symptoms. Hyper echogenicity in SN in PD patients is related to dysfunction of iron metabolism, involving increased iron intake, transport from peripheral to central nervous system and reduction of intracellular iron release. Non-motor symptoms, such as mild cognitive impairment and autonomic dysfunctions, can occur in early stage of PD, which is related with hyper echogenicity in SN, thus demonstrating that combinations of cognitive impairment, autonomic dysfunction and hyper echogenicity in SN may serve as potential biomarker for early prediction and diagnosis of PD.

There is a limitation of this study, which is the lack of age-matched healthy control due to the great difficulty of obtaining CSF samples from such population. We will try our best to collect the samples from healthy control in the future in order to compare dysfunction of iron metabolism and echogenicity in SN between PD and normal subjects.”

2. **Language:**

I’m afraid the quality of the English used throughout your manuscript does not currently meet our requirements. We recommend that you ask a native English speaking colleague to help you copyedit the paper. If this is not possible, you may need to use a professional language editing service. Use of an editing service is neither a requirement nor a guarantee of acceptance for publication.

Thank you for the suggestion. We have made an English editing carefully to our manuscript in order to meet your requirements.

3. **Authors’ Contributions:**

We note that two authors have the same initials (LL). To distinguish between them in the Authors’ Contributions section please designate them as LL1 and LL2, with LL1 corresponding to Li-Xia Li, chosen because this name is furthest up the author list.

We have revised this part, please see page 14, line 342-3346: Authors’ contributions: Research project: A. Conception: WZ, XW, SC, PC; B. Organization: WZ; C. Execution: SY, CC, LZ, ZC,
TL, FW, YH, YP, LL1, PG, LL2, QY and RW. Statistical Analysis: SY. Manuscript preparation: A. Writing of the first draft: SY; B. Review and Critique: WZ, CC, LZ, ZC, TL, FW, YH, YP, LL1, PG, LL2, QY and RW. All authors read and approved the final manuscript.

4. Figure Legends:

Please provide figure titles/legends under a separate heading of 'Figure Legends' after the References. Figure files should contain only the image/graphic, as well as any associated keys/annotations. If titles/legends are present within the figure files, please remove them.

We have provided figure titles/legends under a separate heading of 'Figure Legends' after the References, please see page 15, line 405-410; and removed titles/legends from the figure file, please see Figure 1.