Author's response to reviews

Title: Brain Region involved in moxibustion-induced analgesia in diarrhea type of irritable bowel syndrome: a functional magnetic resonance imaging study

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Author's response to reviews: see over
Dear Editor:

Here within enclosed is our revision clarification of a point-by-point response to the concerns from reviewers.

1. The clarification according to Referee 1 (http://www.biomedcentral.com/manuscript/review/attachment/pdf/1440190853138043.pdf) is as bellows:

   1. The purpose of this study is stated clearly in the abstract and body now.

      From the abstract, it shows:” Moxibustion is one of the most commonly used therapies in acupuncture practice, and is demonstrated to be beneficial for patients with D-IBS. But its mechanism remains unclear. The purpose of this study is to observe brain imaging changes in patients with D-IBS during rectal balloon distention before and after moxibustion treatment in order to reveal its possible central mechanism and further evaluate its effect.” (See Page2)

      From the body, it shows: ”The aim of this study was to examine changes in the brain imaging of D-IBS patients via functional magnetic resonance imaging (fMRI) during rectal balloon distention before and after moxibustion to understand its central mechanism and further evaluate its clinical effect.” (See Page 5-6 )

2. The original ref.1 is deleted now. We cite other four references to provide more epidemiological data of IBS. (See Page 4 and Page 18)

   A. The global prevalence rate of IBS is 11.2% [1]


   B. The prevalence in western countries is from 4.7% to 25% while it’s from 6.5%
to 10.1% in eastern countries [2]


C. In China, it’s about 4.6%-5.67% [3]


D. Among IBS patients in China, 74.1% of them are diarrhea predominant IBS(D-IBS), which is the most common type[4]


3. The original ref.6 is deleted and we cite the other five references as the reviewers suggestion. (See Page 4 ) These five references are ref5, ref 6, ref 7, ref 8 and ref 13 in the revised manuscript.(See Page18-19)


4. The original ref.15 is deleted and there we cite sentences from the original ref.26 to show the conclusion that brain responses to rectal distension differ between IBS patients and healthy controls. (ref22 in the revised manuscript) (See Page 5 and Page 20)


5. In our study, for both groups of patients, a significant activation was observed during the 50 and 100 ml rectal balloon distention in the ACC and PFC. Activation was seen in other brain areas, such as temporal lobe, primary visual cortex, cerebellum, but there is no difference between moxibustion group and control group in these areas. They were not examined further in this study. After aconite-separated moxibustion treatment, activation of the PFC and ACC during the 100 ml rectal balloon distention was not seen when compared with the control group. We discuss the result with the paper of original ref.37 (the ref.35 in the revised manuscript) and the paper of Gut 2004;53:1595-601 (Brain functional magnetic resonance imaging of rectal pain and activation of endogenous inhibitory mechanisms in irritable bowel syndrome patient subgroups and healthy controls) (the ref.34 in the revised manuscript) according to the suggestions from the reviewer. Both these two studies found the activation of ACC and PFC. (See page 14, 15)
6. In our study, ACC was activated. (See Page 3-31)

7. We found that during a 50 ml rectal balloon distention, the activation of the PFC and ACC increased after treatment in both groups. We discuss it with the original ref.20 (ref. 27 in the revised manuscript). Previous study had shown that the fMRI signal rangeability of insula cortex (IC) and PFC increased with the strength of the rectal balloon stimulus but statistical significance was only found when the distention was above 90 ml. In our study, 50 ml rectal balloon distention is a stimulation under pain threshold, its significance remains further research. (See Page 15)

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1. The clarification according to Referee 2 (http://www.biomedcentral.com/manuscript/review/attachment/pdf/4973753811393747.pdf) is as bellows:

Q1: The individual scans consisted of 60 whole brain volume acquisitions, divided into three cycles. Each cycle consisted of 30 s (ten successive volume acquisitions) with visceral stimulation, followed by 30 s without stimulation. Extra baseline (12 s) with no stimulation was added in the beginning of each scanning run. So the total scan includes: simulation stage (30 s), resting stage (30 s), simulation stage (30 s), resting stage (30 s), simulation stage (30 s), resting stage (30 s), totally 180 s. (See Page 10)

Q2: In our study, besides ACC and PFC, activation was seen in other brain areas, such as temporal lobe, primary visual cortex, cerebellum, but there is no difference
between moxibustion group and control group in these areas. They were not examined further in this study. (See Page 14)

Q3: In our study, ACC was activated. (See Page 3-31)

Above are our clarification about the reviewers’ comments. Thank you very much for your attention and consideration.

Sincerely Yours,

Huangan Wu