Reviewer's report

Title: Protective effects of cardiotonic pills on damage induced in the white matter and hippocampus by chronic cerebral hypoperfusion

Version: 2 Date: 21 August 2013

Reviewer: Seong Yun Kim

Reviewer's report:

I suggest major compulsory revisions.

In this manuscript, authors suggested that the cardiotonic pill (an herbal medicine composed of Salvia miltiorrhiza, Panax notoginseng, and Dryobalanops aromatica gaertners) may ameliorate the damage in the white matter and hippocampus induced by chronic cerebral hypoperfusion in rats. In general, this study was carefully designed and well executed in the part which evaluated effects of the cardiotonic pill on white matter damage induced by permanent bilateral common carotid artery occlusion (BCCAO). Nevertheless, there are some concerns which authors should address to improve the quality of the paper. They are as follows:

I. This study was conducted to examine the effects of the cardiotonic pill (CP) on white matter and hippocampal damage by chronic cerebral hypoperfusion which was induced in male Wistar rats subjected to permanent BCCAO. It is well known that white matter damage is typically induced in an animal model used in this study. However, it is unclear that the hippocampal damage was induced in the animal used in this study. Authors argued the hippocampal damage evaluated by immunostaining for myelin basic protein (MBP) was significantly attenuated in the CP-treated group compared to the vehicle-treated group (Fig 1). In Fig 1, it is vague in which part of the hippocampus the level of MBP expression was evaluated. Are there some references in which the damage of the grey matter including the hippocampus was evaluated by immunostaining for MBP? Authors need to validate the evaluation of the hippocampal damage using immunostainign for MBP. Further, it is not determined in this article whether neuronal death was induced in the hippocampus of Wistar rats subjected to BCCAO.

II. The authors need to better check English and to refine their writing: for examples,

1) Title: ~ cardiotonic pills (?) on damage induced in the white matter and hippocampus by chronic cerebral hypoperfusion

2) in lines 4-5 from bottom: ~ rats that lost 80% or more of their presurgical weight during drug or vehicle administration were excluded from ~;

3) in the first line of Results section: CP treatment increased chronic BCCAO-induced MBP reduction in the white matter and hippocampus
**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.