Reviewer's report

**Title:** Cortical GABAergic neurons is more severely impaired by alkalosis than acidosis

**Version:** 2 **Date:** 23 August 2013

**Reviewer:** Jin-Hui WANG

**Reviewer's report:**

Minor essential revision

In present work, Zhang et al. have compared the sensitivity of GABAergic neurons to acidification and alkalinization by examining their excitability and synaptic transmission. They found that GABAergic neurons are more vulnerable to alkalosis and claimed that this is one of mechanisms underlying the severe situation for alkalosis patients. The functional analyses in neuronal intrinsic properties and synaptic efficacy were well done with high quality whole-cell recording, which made the results to be convincing. The neural functional impairment during acidosis and alkalosis is often seen in clinic, but the mechanisms have been less studied. This study is a good start point, which should be encouraged. The publication in BMC Neurology is recommended after a minor revision.

1) In introduction, authors should add more information for their rationale to conduct this study. It seems to me that the introduction is short.

2) Authors should discuss their results in terms of significant impact in pathophysiology and potential clinical benefit.

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

No competing interest. I declare that I have no competing interests.