Reviewer's report

Title: Late onset depression after stroke could be related to small vessel disease: Mood After Stroke: a cross-sectional case control study.

Version: 2 Date: 7 January 2010

Reviewer: Seiji Hama

Reviewer's report:

Overview
This manuscript examined the effect of several risk factors on the late onset depression after stroke. The late onset depression might lead by small vessels disease, which revealed with diffuse white matter lesions on MRI.

The small vessels disease is thought to be occurred by several factors, including homocystein values. Thus the risk of post-stroke depression should be considered the existence of small vessels disease or its risk factors.

Most interesting point for me was that the incidence of post-stroke depression was elevated by several vascular risk factors; i.e. homocysteine, which was thought to lead white matter ischemic changes through some mechanisms, such as endothelial damage.

Comment
<Major>
(1) I think that the massage of this manuscript was not clear. For me, the main story of this manuscript was the effect of small vessels disease, not local stroke damage, on the post-stroke depression (PSD). The risk factors for small vessels disease were also become a risk factor for PSD. The author should re-arrange the manuscript, especially “Introduction” and “Discussion”, more clearly.

(2) The result of this manuscript emphasis that PSD linked with diffuse type of small vessels disease, not discrete lacunar type. Does this result contradict the previous “PSD and lesion-location” theory; i.e. left frontal lobe, basal ganglia? In the Discussion section, the comment about “PSD and lesion-location” could not be found. I think the comment about this was needed.

(3) PSD was correlated with the diffuse change of the basal ganglia, not lacunar infarction of the basal ganglia. However, common neuropsychiatric consequence of stroke has been reported to be both depression and apathy, and the anatomical correlates of PSD differ depending on the PSD dimension (affective or apathetic) and may explain interstudy differences regarding the association between lesion location and type of PSD (Hama S et al.

Post-stroke affective or apathetic depression and lesion location: Left frontal lobe and bilateral basal ganglia. Eur. Arch. Psychiatry Clin. Neurosci. 2007; 257: 149-152). Moreover, apathy might be more frequently
associated with functional abilities and likely interact with the recovery process as compared with depression after stroke (Hama S, Yamashita H, Shigenobu M et al. Depression or apathy and functional recovery after stroke. Int. J. Geriat. Psychiatry 2007; 22: 1046-1051.). I think the author should consider the existence of apathy other than depression, and should discuss in the manuscript.

(4) Title and conclusion has emphasized the effect of some vascular risk factors and the small vessel disease. However, this manuscript mainly presents the data which compared between depressed and non-depressed stroke patients, not presents the data which examined the effect of some risk factors on the small vessels disease (i.e., correlation between MRI findings and several risk factors). I think the author should presents and/or discuss detail about this point.

<Minor>

(5) Did Controls mean non-depressed groups? Usually, I think that controls also means non-stroke non-depressed, or non-stroke depressed patients.

(6) It is unclear why did you exclude the minor-depressed stroke patients.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable