PEER-REVIEW REPORT

Name of journal: World Journal of Psychiatry
Manuscript NO: 33281
Title: Three-dimensional stereotactic surface projection in the statistical analysis of single photon emission computed tomography data for distinguishing between Alzheimer's disease and depression
Reviewer's code: 02445238
Reviewer's country: Hungary
Science editor: Fang-Fang Ji
Date sent for review: 2017-02-12
Date reviewed: 2017-02-22

CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
[ ] Grade A: Excellent	[Y] Grade A: Priority publishing	Google Search:	[Y] Accept
[Y] Grade B: Very good	[ ] Grade B: Minor language	[ ] The same title	[ ] High priority for
[ ] Grade C: Good	polishing	[ ] Duplicate publication	publication
[ ] Grade D: Fair	[ ] Grade C: A great deal of	[ ] Plagiarism	[ ] Rejection
[ ] Grade E: Poor	language polishing	[Y] No	[ ] Minor revision
	[ ] Grade D: Rejected	BPG Search:	[ ] Major revision
		[ ] The same title	
		[ ] Duplicate publication	
		[ ] Plagiarism	
		[Y] No	

COMMENTS TO AUTHORS

I have read with great interest the paper about the AD, pseudodementia , depression and occult forms related to the PET findings. The advantage of this paper the well planned study design, the adequate statistical analysis and the interpretation. The authors acknwledged the limintations, like the influence of age and female gender on their findings and that only one-third of the investigated population could be clustered in the presented categories. An extra table showing the positive, negative predictive value of the applied tests would be useful for the clinicians.

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CLASSIFICATION	LANGUAGE EVALUATION	SCIENTIFIC MISCONDUCT	CONCLUSION
[ ] Grade A: Excellent	[ ] Grade A: Priority publishing	Google Search:	[ ] Accept
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COMMENTS TO AUTHORS

This is an interesting study on the use of SPECT in differentiating depression from dementia. However from the perspective of a clinician who encounters such diagnostic problems, the foremost question is how useful & valid will be a SPECT scan in this distinction.   Therefore, as a reader I would like the authors to clarify a few issues.   1. It appears that the diagnosis of depression & dementia was a two or three step process. Following clinical diagnosis, patients were rated on the 2-item Patient Health Questionnaire depression module & the OLD.   Next - "Patients showing evident signs of dementia of non-AD type (vascular dementia, Lewy body disease, frontotemporal lobar degeneration, etc.), according to clinical symptoms or diagnostic imaging findings, were excluded from this study." Finally, "Patients with HAM-D scores of 10 or higher were rated as having depressive symptoms (HAM-D positive). Patients with MMSE scores of 24 or lower were rated as having symptoms of dementia (MMSE positive)."

My concern is whether this ascertainment was sufficient to reliably discriminate between the two groups? Would a more detailed structured interview not helped? Is it possible to completely rule out non-AD dementias by such an evaluation?   2. The distinction based on SPECT appeared to hinge on - "AD-associated and depression-associated regions were defined as the brain regions known to exhibit characteristic blood flow reductions in the presence of AD 3-6 and Depression 14. (AD-associated regions: superior parietal lobule, inferior parietal lobule, precuneus, and posterior cingulate gyrus; depression-associated regions: superior frontal gyrus, middle frontal gyrus, and inferior frontal gyrus)" There are four quoted references for characteristic "AD-associated" regions and one for depression. The question that comes to my mind again is how valid is this distinction given the small number of studies it appears to be based on? Is there no overlap between AD & depression associated regions, perhaps in other studies.   3. The final question is what are the implications of this study for clinicians. Can SPECT be used to somehow better a distinction made on clinical grounds, including the response of cognitive impairment to treatment for depression? Even the meta-analysis by Dougall et al. quoted by the authors concludes that "...clinical criteria may be more sensitive in detecting AD than brain SPECT (81% versus 74%). However, SPECT studies provide a higher specificity against other types of dementia than clinical criteria."   Lastly, given the fact that a substantial proportion of patients with 'psuedodementia' will go on to develop dementia on follow-up, shouldn't a word of caution be mentioned somewhere in such studies of SPECT on the distinction between depression & dementia?