Reviewer’s report

**Title:** Unresponsive wakefulness syndrome: a new name for the vegetative state or apallic syndrome?

**Version:** 3 **Date:** 4 September 2010

**Reviewer:** Daniel Alan Shewmon

**Reviewer’s report:**

The authors are to be commended for proposing to replace the term “vegetative state” in a strong and convincing way through this coordinated multinational effort. Only time will tell if their proposal succeeds, but the attempt is worth the effort. I have only a few suggestions for strengthening the manuscript.

**MINOR ESSENTIAL REVISIONS**

1. The comparison with brain death on pp. 8-9 could be fine-tuned, if it is really necessary at all. Although absent blood flow to the entire brain surely guarantees permanence of whole brain failure, it remains to be established that “arteriography, echo Doppler or nuclear imaging” have the requisite sensitivity to distinguish truly absent flow from very low flow (in the ischemic penumbra range, insufficient for function but barely sufficient for tissue viability) in all parts of the brain. Furthermore, “absent electrogenesis on EEG or ERP” surely does not confirm “whole brain failure” but only failure (and not even necessarily irreversible failure) of the portions of the neocortex adjacent to the skull (EEG) or of the specific sensory pathways studied by ERPs. (Cf. the recent critique of confirmatory tests by Wijdicks in Neurology 2010;75:77-83.) Even the assertion that whole brain failure establishes “the absence of life” is becoming increasingly debated. The gratuitous taking of sides on an issue that has nothing to do with the topic of the paper (apart from serving as an analogy) runs the risk of distracting, if not detracting, from the authors’ message, notwithstanding that they assume the mainstream majority view. This paper (and this review) are not the proper venue for delving into the controversies surrounding brain death, and I would recommend avoiding wording that appears to take for granted what is in fact controversial about something not directly related to the proposed change of terminology for “vegetative state.”

2. Another controversial issue that is simply taken for granted is that “awareness of environment and self” requires “higher neocortical integrative” brain functions (p. 9). To be sure, such awareness requires integrative brain functions, but the authors’ insightful reasons for insisting on the descriptive term UWS without implications regarding subjective consciousness also apply to the evidence (or lack thereof) that subjective consciousness is generated from integrative activity specifically of the “higher neocortex.” (Cf. Merker B. Consciousness without a cerebral cortex: a challenge for neuroscience and medicine. Behav Brain Sci. 2007;30:63-81.) If there is no evidence of awareness in someone who is globally
aphasic and can’t understand commands, and is agnosic and apraxic for what little movement remains possible within the confines of spastic quadriplegia, that doesn’t ipso facto prove that the person has no primary sensations, no capacity to suffer pain and discomfort, and no awareness of self. Again, I would urge sticking with the theme of the paper and avoiding side assertions that lack evidence, even though they may be popularly held, and are really unnecessary for the authors’ purpose.

3. The authors draw attention to the multiple lines of evidence that a subset of UWS patients do have inner cognitive functioning and subjective awareness. But in two places the wording contradicts this important point. E.g., Abstract, end of the Discussion paragraph: “(who sometimes never recover consciousness...),” implying that all such patients were in fact unconscious. It would be more consistent with the paper’s title and thesis to state: “(who sometimes never recover responsiveness...).” The same inconsistency occurs on page 7, third line of Discussion: “who sometimes never recover consciousness…”

A few very minor stylistic suggestions or typos:

4. Abstract Summary: “If after 35 years...” # “Since after 35 years...

5. Abstract Summary: “… we think it is be better...” # “… we think it would be better...

6. Page 7, line 4: “misdiagnosis chronic patients” # “misdiagnosis of chronic patients”

7. Page 7, penultimate line of first paragraph: “…(ERP) have shown…” # “…(ERP) studies have shown…”

8. Page 7, last line of first paragraph: “careful to make” # “careful about making” or “careful before making”

9. Page 7, first line of Discussion: “inherent to” # “inherent in"

DISCRETIONARY REVISIONS

Page 5, line 11: “preserved vegetative (autonomous) nervous functioning”. “Autonomous” from what? Does the inclusion of this parenthetical term contribute anything? I find it confusing.

Quality of written English: Needs some language corrections before being published

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.