

Format for ANSWERING REVIEWERS



April 30, 2014

Dear Editor,

Please find enclosed the edited manuscript in Word format (file name: 8701-review.doc).

Title: Progress in sensorimotor rehabilitative physical therapy programs for stroke patients

Author: Jia-Ching Chen, Fu-Zen Shaw

Name of Journal: *World Journal of Clinical Cases*

ESPS Manuscript NO: 8701

The manuscript has been improved according to the suggestions of reviewers:

We must thank first the reviewers for their constructive comments. Format has been updated and made appropriate changes and modified the text to address reviewer's concerns. These changes in the revised manuscript (8701) are highlighted in **RED**.

1. Reviewer 1 comments

- (1) First, the author proposes conventional and advanced treatment methods of the neurorehabilitation for stroke patients. Could the author describe the detailed criteria for defining the conventional and advanced neurorehabilitation methods that the readers can tell them different easily?

Answer:

Thanks for reviewer's constructive suggestion. A section "categorization of stroke rehabilitation programs" is added to clarify the conventional and advanced rehabilitations. (page 4) For example, "The conventional rehabilitations are proposed and used from clinical experience and observations. It is developed early and is a kind of routine rehabilitation in clinic. In contrast, the advanced rehabilitations are developed and employed based on scientific evidence. It is usually concerned to be incorporated with a conventional rehabilitation."

- (2) Second, the authors indicated that most of the advanced neurorehabilitation techniques are based on neuroscience evidence rather than pragmatism. The neuroplasticity and reorganization of cerebral cortex are accompanied by functional recovery of the stroke using functional brain images. Could the studies and evaluations for the conventional and advanced stroke neurorehabilitations use the same tool?

Answer:

Several tools from behavior (Fugl-Meyer assessment and Barthel Index for daily functional activity) and neuro-image techniques (ERP, fMRI, PET) were used in advanced rehabilitation programs (such as reference 10,11,14,15 and others). However, most conventional rehabilitation program is assessed by behavior tools. Very few studies are assessed by imaging techniques. So the comparison between conventional and advanced rehabilitation programs is not available to get a good summary in a skewed population. Thus, the present study only describes and emphasizes the neuro-physiological data on advanced rehabilitation programs to correlate with functional recovery and neuroplasticity in stroke patients.

- (3) Could the author present any evidence or paper described the compared effect of the conventional and advanced stroke neurorehabilitations ?

Answer:

Thanks for reviewer's suggestion. There is little evidence for comparing effect between the conventional and advanced rehabilitations in the section "categorization of stroke rehabilitation programs". (page 4) Due to ethical issue, most advanced rehabilitation techniques should be added into conventional rehabilitation in acute and subacute stages of stroke. Only a few advanced program, such as CIMT (page 13, 1st paragraph), PBWSTT (page 11, 1st paragraph), and robotic gait trainer (page 10, 1st paragraph), are compared with conventional rehabilitation in chronic stage of stroke. The statement is described in the section "categorization of stroke rehabilitation programs". (page 4, 2nd paragraph)

- (4) Moreover, could the author present more evidences to support the suggestion of the concept of combining valuable rehabilitative programs, "a training package", according to the patient's functional status during different recovery phases after stroke since.

Answer:

In this version, the concept of "training package" has been described in more detail. For example, valuable effectiveness of advanced plus conventional rehabilitations has been described (page 15 1st paragraph). Perspectives of time, safety, dose, modality used in advanced +conventional rehabilitations are also summarized (page 15, 2nd-3rd paragraph). Valuable evidences during different recovery phases are summarized in figure 1. Possible operations for the training package are described according to different stroke severities and time courses (page 15, 2nd-3rd paragraph). Based on flowchart of the training package, several future directions or concerns are also shown in the text, including longitudinal study for a particular advanced intervention throughout the entire rehabilitation process (page 15, 1st paragraph), time-related significance between different advanced interventions (page 15, 2nd paragraph), and intervention dose and timing to obtain optimal functional outcomes (page 15 3rd paragraph).

- (5) Finally, there is some concern that the authors have omitted several critical papers in the field. A search of 'physical therapy' and 'stroke' brings up at least 59 papers, at least two of which are relevant since they also review the stroke rehabilitation.

1. Dobkin BH, Dorsch A. New evidence for therapies in stroke rehabilitation. *Curr Atheroscler Rep.* 2013 Jun;15(6):331. doi: 10.1007/s11883-013-0331-

2. Geroi C, Mazzoleni S, Smania N, Gandolfi M, Bonaiuti D, Gasperini G, Sale P, Munari D, Waldner A, Spidalieri R, Bovolenta F, Picelli A, Posteraro F, Molteni F, Franceschini M; Italian Robotic Neurorehabilitation Research Group. Systematic review of outcome measures of walking training using electromechanical and robotic devices in patients with stroke. *J Rehabil Med.* 2013 Nov;45(10):987-96. doi: 10.2340/16501977-123

Answer:

Thanks for providing two valuable references. The first paper is added into the present study. The second paper that focuses on valuable outcome measures for robotic device is not cited in this study because its contribution is not major emphasis of the present study. References, including systematic reviews and evidence-based paper, are extended from 59 to 80 in this version to further clarify the concept.

- (6) Abstract & Keywords: The Abstract appropriately summarizes the manuscript. It provides enough information necessary to understand the study and its conclusions while being concise at the same time. I suggest adding more statement regarding the synergistic effect of the conventional and advanced neurorehab treatment method as this finding is proposed by the author. As stated previously, the Abstract would benefit from a thorough round of editing by a native English speaker, which would improve to clarity and readability overall. The Keywords are appropriate. Conclusions The conclusions are reasonable but a little bit brief.

Answer:

Thanks for reviewer's suggestion. Additional statements about the advanced and conventional rehabilitation are described. In the section of "advanced rehabilitation strategies", synergistic effect of advanced+conventional rehabilitation has been shown in each advanced intervention, particular for robot-aid intervention (page 10), PWBSTT (page 11), virtual reality (page 11-12), thermal stimulation (page 13-14). In particular, several reviews or meta analyses for each advanced rehabilitations are introduced in this version.

The manuscript has been edited by professional editing Inc., American Journal Expert (see invoice proof). The conclusion is described in more detail.

- (7) Tables I suggest adding more details of the Rationale component of the Table, if more differences can be provided. Otherwise, the Tables are appropriate and understandable.

Answer:

More detail rationales for all conventional rehabilitations are described in table 1 and within the text.

2. Reviewer 2 comments

Major critiques

- (1) This manuscript is supposed to provide the latest information concerning rehabilitation programs after stroke, which may guide a choice-making for rehabilitation after stroke so that recovery after stroke can be maximized. Actually, National Stroke Association in association with American Heart Association has provided a guideline for rehabilitation after stroke. Please see this internet address: <http://www.stroke.org/site/PageServer?pagename=rehab> From the above internet address, all information except for the detailed, technical methods of rehabilitation after stroke is provided. On the other word, significance of this manuscript lies on information provided in Fig 1. Nevertheless, priority orders of the provided therapies, safety vs. effectiveness, and possible combination of the choices in association with detailed timeline have not been addressed. Authors may extend these topics to strengthen the manuscript other than just listed the therapies in both tables/figure 1 and in the text.

Answer:

Thanks for reviewer's constructive suggestion for a very useful website regarding stroke-related issues. In this version, more professional articles are added. Detail descriptions about conventional and advanced rehabilitations have been added in the text and tables of this version. The concept of "training package" has been described in more detail. For example, valuable effectiveness of advanced plus conventional rehabilitations has been described (page 15 1st paragraph). Perspectives of time, safety, dose, modality used in advanced +conventional rehabilitations are also summarized (page 15, 2nd-3rd paragraph). Valuable evidences during different recovery phases are summarized in figure 1. Possible operations for the training package are described according to different stroke severities and time courses (page 16, 2nd-3rd paragraph). Based on flowchart of the training package, several future directions or concerns are also shown in the text, including longitudinal study for a particular advanced intervention throughout the entire rehabilitation process (page 15, 1st paragraph), time-related significance between different advanced interventions (page 15, 2nd paragraph), and intervention dose and timing to obtain optimal functional outcomes (page 15 3rd paragraph).

- (2) Authors' another point for the review seems arguing the traditional rehabilitation approaches against rehabilitation "training package". Following questions have to be addressed to strengthen the manuscript: a) Define "training package" b) List some successful training packages b) List advantages of the cited training package c) When listing the disadvantages of "recently developed rehabilitation therapy/training package" please provide citation or your own data as possible as you can to support your argument.

Answer:

Thanks for reviewer's comment. Previous version may have misleading statement. In the revised version, we have described a training package as coming from evidences of conventional+advanced rehabilitations. The training package can provide valuable information for therapies to get useful

intervention depending stroke status and progression. Appropriate two examples of how to select the intervention depending on time course and stroke stages have been described in this study (page 15, 2nd-3rd paragraph). Several concerns or limitations on a training package have been described (page 16-17).

(3) Specific critiques

1. Please provide page number.

Answer:

Page number is indicated in this version.

2. The manuscript is readable by professionals with background knowledge but many parts may be confusing due to English-expressing pattern or inappropriate grammar. It is recommended that an English edition is required. For example, let us starting with the first paragraph of "Introduction" (a) Original sentence: "The most commonly occurring deficits is to the hemiparesis, resulting in an immediate impairment to upper limb function [2-4], stand, balance and walking ability [2,3,5], which not only limit personal activities in the family and social participation but also pose a heavy physical burden on their relatives or caregiver [6]." Mistakes 1 for above sentence: the most commonly occurring deficits is Mistakes 2 for above sentence: which not only limit....pose ("which" here either describes the word before it, here "ability" or "the whole sentence" before it, either way it should be: "limits and poses"). (b) Original sentence follows the above the sentence: Although..., more than half of the patients are still frustrated on upper limb function after 6 month post stroke [2-5]. Mistake

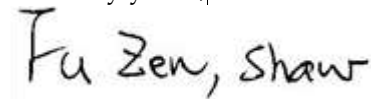
Answer:

The errors have been fixed. The manuscript has been edited by professional editing Inc., American Journal Expert (see invoice proof).

3 References and typesetting were corrected

Thank you again for publishing our manuscript in the *World Journal of Clinical Cases*.

Sincerely yours,



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