Iraqi JMS

Published by Al-Nahrain College of Medicine
ISSN 1681-6579
Email: Iraqi_jms_alnahrain@yahoo.com
http://www.colmed-nahrain.edu.iq/

Observing the Outcome of using NeuroAid [MLC 601] on a sample of Iraqi Stroke Patients

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Abstract

Background Stroke is one of the major causes of morbidity and mortality throughout the world, and carries greater economic costs. [MLC 601] originates from Traditional Chinese Medicine approved in 7 countries as drug that can aids post-stroke recovery.

Objective To assess [MLC 601] efficacy in improving outcomes of Iraqi patients' stroke.

Methods Two hundreds ischemic stroke patients and 17 intracerebral hemorrhage patients were participated in this study; they took [MLC601] at the onset of their disease for 3 months and were assessed monthly for the motor power using modified Rankin scale mRs scale, speech, and visual field assessments.

Results mRs grade [4-5] were changed from (zero out of 159) at onset to (89 out of 55) at first month and to 98 out of 134 ischemic stroke patients after 3 months; also mRs grade [4-5] were changed from (1 out of 17) at onset to (12 out of 17) at first month and to 12 out of 17 intracerebral hemorrhage patients after 3 months. In 44% of the enrolled patients with aphasia were improved. Visual field assessments showed improvement in 43% of the patients with homonymous heminopia after 3 months [MLC 601] treatment.

Conclusion [MLC 601] is associated with improvement in all post stroke disabilities and placebo controlled trial is crucial to assess the benefit of it.

Key worlds Stroke, intracerebral hemorrhage, MLC 601, NeuroAid

Introduction

Stroke is the sudden onset of focal neurologic symptoms due to ischemia or hemorrhage in the brain [(1)]. It is the commonest neurological disorder admitted in the general medical and neurological wards (accounting for 50 % of the neurological wards admission) [(2)]. Although stroke death rates decreasing substantially in the United States from 1996 to 2005 [(3)] stroke still the second leading cause of death worldwide [(4)], and is the commonest cause of morbidity worldwide [(2,4)]. The high mortality and morbidity of stroke poses a high economic and social burden on the society [(5)]. To date, no effective treatment has been found that reduces stroke-induced disabilities. [MLC 601] has recently been approved in 7 countries as a treatment that can support post-stroke recovery [(6)]. [MLC 601] originates from traditional Chinese medicine and is a combination of nine herbal

components and five animals components [7], trials of [MLC 601] in China found that patients receiving [MLC 601] were 2.4 times more likely to be independent at 1 month after stroke than the control group [6]. The neuroproliferative and neuroprotective effects of [MLC 601] (and hence its potential role in neuroplasticity after stroke) have been recently established in animal models of stroke and ischemia [8]. MLC601 (NeuroAid) were provided by Moleac (Singapore). The composition of MLC601 (0.4 g per capsule) was the following: 0.57 g Radix astragali, 0.114 g Radix salvia miltiorrhizae, 0.114 g Radix paeoniae rubra, 0.114 g Rhizoma chuanxiong, 0.114 g Radix angelicae sinensis, 0.114 g Carthamus tinctorius, 0.114 g Prunus persica, 0.114 g Radix polygalae, 0.114 g Rhizoma acori tatarinowii, 0.095 g Buthus martensii, 0.0665 Hirudo, 0.0665 g Eupolyphaga seu steleophaga, 0.0285 g Calculus bovisartifactus, 0.0285 g Cornu saigae tataricae [8].

In our study we summarize reported neurological improvements in Iraqi stroke patients who used Neuraid as part of their treatment.

Methods

Two hundred and seventeen patients with stroke were admitted into Al-Kadhimiya Teaching Hospital and Hospital of Neurosciences from January 2007 to January 2011 was included in the study. The patients and their companions' written consent were taken before participating in this study and the study was approved by ethical committees of Alkindy College of Medicine.

We excluded unconscious patients and those with minor stroke at the onset of the disease.

The [MLC 601] dose received was 4 tablets, 3 times per day [8] for 3 months [MLC 601] was given in addition to the patients other treatment like antiplatelet, anticoagulant, lipid-lowering, antihypertensive, hypoglycemic drugs and other medications.

The patients were assessed medically and neurologically at time of admission and thereafter monthly for 3 months after discharge from the hospital. All patients were sent for brain CT scan, the residual disability was assessed according to modified Rankin scale [mRs] [9] at onset and monthly thereafter.

Six speech domains were assessed: fluency, comprehension, naming, repetition, writing and readings (if the patient could read and write prior to the stroke). Visual field was assessed only for the patients with field defects using perimetry at onset and at first and third months post stroke. For the homonymous heminopia, we considered any enlargement in the visual field using perimetry as an improvement.

We lost contact with 25 patients for unknown reasons mainly because of the unstable security state in Iraq which prevent them to maintaining follow up.

Results

Two hundred patients had ischemic stroke, and 17 had intracerebral hemorrhage. We had 133 male participants out of the 200 ischemic stroke patients, and 11 males out of the 17 intracerebral hemorrhage patients. Their age ranged between 24-83 years (Table 1). Seventy three patients were females, while 144 were males, majority are between 40-69 years of age. Age and gender distribution of patients is present in tables 1 and 2.

Table 3 showed that only one out of 17 intracerebral hemorrhage patient in the group with mRs below grade 2; and 12 out of 17 in the first and third month.

We considered G2-5 mRs score to reflect patients' dependence, while G0-1 was equivalent to the patient being independent. Table 4 shows that zero out of 159 ischemic stroke patients group with mRs score of G2-5; 89 out of 155 in the first month and 98 out of 134 in the third month were had such mRs score 2 of treated group.

Out of the 21 aphasic patients, 9 improved and 12 did not after 3 months. Also, 18 out of the 37

patients with visual field defects improved (Tables 5 and 6).

Twenty patients stopped taking the drug. Causes of treatment discontinuation were: no benefit in 11 patients, large dose in 5 patient, side effects in 3, and patient will in only 1 patient.

Table 1. Gender distribution of patients among stroke types

Sex	Ischemic stroke	Intracerebral hemorrhage	Total (%)
Male	133	11	144 (66.3%)
Female	67	6	73 (33.6%)
Total (%)	200 (92.2%)	17 (7.8%)	217

Table 2. Age and sex distribution of ischemic stroke patients

Sex	Age Groups (Years)							Total
	20-29	30-39	40-49	50-59	60-69	70-79	80-	
Male	10	13	13	27	49	13	8	133 (66.5%)
Female	2	3	9	20	21	8	4	67 (33.5%)
Total (%)	12 (6%)	16 (8%)	22 (11%)	47 (23%)	70 (35%)	21 (10.5%)	12 (6%)	200

Table 3. Grade of disability according to mRs Score in patients with ICH at the onset, 1 month and after 3 months afterwards

	G5	G4	G3	G2	Total G2-5 (%)	G1	G0	Total G1-0 (%)	Total
onset	83	1	3	4	16 (94.1%)	1	0	1 (5.9%)	17
1st month	28	2	2	1	5 (29.4%)	3	9	12 (70.6%)	17
3rd month	11	2	2	1	5 (29.4%)	3	9	12 (70.6%)	17

(G2-5 being dependent and G0-1 being independent)

Table 4. Grade of weakness according to mRs Score of muscle power in patients with ischemic stroke at onset, after 1 month and after 3 months afterwards

	G5	G4	G3	G2	Total G2-5 (%)	G1	G0	Total G1-0 (%)	Total
onset	83	30	29	17	159 (79.5%)			41 (20.5%)	200
1st month	28	17	11	10	66 (33%)	59	30	134 (67%)	200
3rd month	11	6	6	13	36 (18%)	43	55	164 (82%)	200

Table 5. Aphasic patients' results and distribution across types of defects

Type of defect	Improved (%)	Not (%)	Total
Global	4 (30.8%)	9 (69.2%)	13
Motor	2 (50%)	2 (50%)	4
Sensory	1 (50%)	1 (50%)	2
Others*	2 (100%)	0 (0%)	2
Total	9 (42.8%)	12 (57.1%)	21

*Trascortical and subcortical aphasia

Table 6. Visual field problems patients

Visual Field defect	Improved (%)	Not (%)	Total
Cortical blindness	0 (0%)	5 (100%)	5
Homonymous heminopia	18 (56.25%)	14 (43.75%)	32

Discussion

In the present study we use mRs scaling system to assess the motor function and we divided the patients into those with MRC score G2-5 (and hence who were independent), and those with mRs score of G0-1(who were dependent). Other studies used Fugl-Meyer Assessment score (FMA), National Institutes of Health Stroke Scale (NIHSS) and Functional Independence measure scale (FIM) which are so detailed and takes longer time than (mRs) scale and difficult to apply routinely [6,7,8]. We only excluded comatose patients and those with minor stroke; this is another difference from other studies which also excluded intracerebral hemorrhage, atrial fibrillation, infarction of the basilar artery system systemic diseases [6-8,10] to have an idea about the recovery whatever the type of stroke and whatever the risk factors. This observational study depend on the improvement from depend to independ; although the sample size is small, the result is clearly more than what expected in the measurement of motor recovery with [MLC 601] [11].

We used [MLC 601] in 17 patients with intracranial hemorrhage. Although the number is low, this is the first study involving intracranial hemorrhage patients as the previous trials excluded intracranial hemorrhage [6-8,10].

Our results again, as seen in the tables, demonstrate the improvement in functional ability and reduction in the morbidity of stroke that we observed in out patients in comparism with the natural history [11]; the result is comparable to Venketasubramanian et al [7], and Kong et al study [10]. Venketasubramanian et al [7] suggested that [MLC 601]'s effectiveness in improving stroke recovery may be related to its role in neuronal protection reconnection and plasticity.

Regarding patients with aphasia, our study showed full improvement in 44% of the enrolled patients, all of whom kept some degree of dysartheric speech. The result was definitely more than what we expected as a natural history of aphasia after stroke [12]. To our knowledge, no other trial assessed the effect of [MLC 601] on the defects in the speech component after stroke.

Assessment of the field defects after stroke is another unique feature that we included in our study; the results of cortical blindness was shown in table 6, which revealed no beneficial effect of [MLC 601] on cortical blindness. The results showed improvement in 43% of the patients.

Regarding side effects only one patient developed repeated epileptic fits (causing the patient to consequently stop the drug). One patient developed renal failure (which may not be related to the treatment); others developed gastric upsets; no fatal reaction was reported in patients with and without side effects. Most patients complained about the dosage (being 4 capsules per dose); 5 patients stopped [MLC 601] because of this large dose.

In conclusion, although a larger cross match trial is needed for better evaluation, this study observed that [MLC 601] use was associated with high proportion of functional recovery in our patients. This study can be a starting point for future research. As we do not have highly effective medications that aid in the post stroke recovery, it is beneficial to investigate the available new alternatives like [MLC 601].

We conducted this study (which may not be the most robust method to investigate [MLC 601] benefits) as it is currently the most feasible given the situation in Iraq. However, our results can justify future research using case-control or cohort study designs. In Iraq, randomized clinical trials are almost impossible to conduct, but colleagues in other countries may be invested in that as a potential future direction. As we acknowledge our limitations and the potential sources of bias in our results; we also recommend better studies with larger samples and with double blinding techniques to reflect the true effects of [MLC 601] on stroke patients.

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Received 18th Sept. 2011: Accepted 5th April 2012