Abstract

Objective: The authors evaluated the effectiveness and safety of methylphenidate (MPD) for geriatric patients with vascular depression (VD).

Methods: We reviewed all charts of geriatric patients with VD (over 60 years old) at Kamo Psychiatry Medical Center and Hiroshima-Nishi Medical Center treated with MPD between April 2001 and March 2007. Hamilton Rating Scale for Depression (HAM-D) was administered at baseline and 4 weeks after the initiation of MPD augmentation.

Results: 81.8% (9/11) of the patients with VD improved by MPD augmentation with antidepressants based on HAM-D criteria. The mean total scale of HAM-D at baseline was 19.4±11.9 and that of HAM-D after the MPD augmentation was 2.9±5.8. This value was statistically significant ($p < 0.01$). The mean dose of MPD was 9.1±2.9 mg/day (range=5-20mg/day) and none of the patients had adverse reactions of MPD.

Conclusions: This study suggested that MPD was effective and safe for geriatric patients with VD.

Introduction

- Alexopoulos and Krishnan introduced the term "vascular depression (VD)" for both post-stroke depression (PSD) and MRI-defined VD.[1,2] We previously reported that MRI-defined VD is more resistant to treatment than depression without cerebral infarctions.[3]

- Methylphenidate (MPD) is a mild central stimulant of the phenylethylamine category, a potent dopamine, norepinephrine, and serotonin releaser.[4] Wallance et al demonstrated the efficacy of MPD in older, medically-ill depressed patients by double-blind, placebo-controlled trial.[5]

- Lazarus et al reported a retrospective study showing 80% of the patients of PSD improved during MPD treatment.[6] We recently showed 2 cases of MRI-defined VD who dramatically improved with the treatment using MPD,[7] however, there has been no controlled study evaluating the effects of MPD for VD, especially for MRI-defined VD.

- We reported here our clinical experience with the use of MPD for geriatric VD patients including MRI-defined VD.

Methods

- **Participants:** We reviewed all charts of geriatric patients with VD (over 60 years old) at Kamo Psychiatry Medical Center and Hiroshima-Nishi Medical Center treated with MPD between April 2001 and March 2007. Each patient was diagnosed as major depression by DSM-III-R or DSM-IV-TR. Patients were excluded if they had a diagnosis of dementia, other psychiatric illnesses, neurological illnesses, and any contraindications to cranial MRI.
- **MRI scanning procedures:** The diagnosis of MRI-defined VD was prospectively defined as a deep white matter hyperintensity (DWMH) score of 2 or 3, or a subcortical hyperintensity (SCH) score of 3 according to the Coffey classification system.[2] The diagnosis of PSD was also defined as a DWMH score of 2 or 3, or a SCH score of 3, with the previous stroke event of brain infarction.
- **Assessments:** we collected the demographics shown in Table1. We also assessed the dose and duration of MPD treatment, incidence of adverse reactions, whether MPD improved symptoms. A 21-item Hamilton Rating Scale for Depression (HAM-D) was administered at baseline and 4 weeks after the initiation of MPD augmentation. A decrease of 50% or greater from the baseline score on HAM-D was considered a response to treatment.

Results

- Eleven VD patients treated with MPD were identified. Demographic characteristics of the patients at baseline are exhibited in Table1.
- The mean dose of MPD was 9.1±2.9 mg (range = 5-20mg), and the mean duration of treatment was 73.9±71.7 weeks (range 8.7-243.8 weeks).
- 81.8% (9/11) of the patients were responders for MPD based on HAM-D criteria.
- The mean total scales of HAM-D at baseline was 19.4±11.9 and that of HAM-D after the MPD augmentation was 2.9±5.8 (Table2), which was statistically significant ($p < 0.01$).
- The symptoms of "insomnia", "work & interests", "retardation", "somatic symptoms", and "loss of weight" were significantly improved ($p<0.01$-0.00001). The symptom of "loss of weight" was most improved ($p < 0.00001$).
- Two of 11 patients were non-responders for MPD, and no subjects had adverse reactions.

Table1: Demographics of the patients at baseline (N=11)

age * (y)		79.3±7.82
gender	male (n)	2/11
	female (n)	9/11
diagnosis	MRI-defined VD (n)	9/11
	PSD (n)	2/11
age of first mood episode * (y)		77.3±9.0
antidepressant use(n)		11/11 (100%)
mood stabilizer use (n)		0/11 (0%)
thyroid hormone use (n)		2/11 (18.2%)
number of antidepressant for each patient*		2.45±1.56 (range=1-6)
dose of each antidepressant†* (mg/day)		67.9±31.8
duration of antidepressant treatment* (weeks)		30±24.2 (range=1-72)

MRI; magnetic resonance imaging, VD; vascular depression, PSD; post stroke depression, *; mean±S.D, y ; years old, †; imipramine equivalents.

Conclusions

- **This study showed that augmentation therapy by using MPD was effective for geriatric patients with VD.**
- **All patients including non-responders showed no adverse reaction of MPD.**
- **The doses of MPD should be kept as low as possible to prevent the psychotic side effects and addiction of MPD, and it might be better that MPD is tapered off or switched to other dopamine agonists which are expected same effects as MPD,[8] after the crucial symptoms were improved.**

References

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