



Low Dose of Rotigotine in Post-Stroke Patients with Vascular Parkinsonism and Obstructive Sleep Apnoea Syndrome, Effects on Quality of Life and Rehabilitation Therapy

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Abstract

Stroke is a frequent cause of disability in U.S.A. (200.000/year).

Aim: The aim of this study is to underline the effect of low dose of Rotigotine patches 2 mg/24 h, a complete dopamine agonist with continuous dopaminergic stimulation through the transdermal administration, in elderly with recent stroke and vascular Parkinsonism about quality of life and adherence to rehabilitation therapy.

Methods: We have enrolled 6 elderly patients (3 males and 3 females, range age 60 – 95 years) with recent ischemic and vascular Parkinsonism. We have evaluated quality of life and cognitive function with UPDRS part III, MMSE, ADL, IADL and Morinsky Scale. At the same time we have evaluated the adherence to therapy and timing of rehabilitation therapy before and post-administration of Rotigotine 2 mg/24 hours.

Conclusion: In conclusion, Rotigotine could be a new useful approach in the treatment of elderly patients with recent ischemic and hemorrhagic stroke correlated with vascular Parkinsonism which can lead to an akinesia with the need to start rehabilitation therapy. Our preliminary data gives comfortable results but, at this time, we have enrolled only few patients to give conclusive results.

Keywords Rotigotine; Ischemic stroke; Vascular parkinsonism; OSAS; Rehabilitation therapy; Adherence therapy

Introduction

Stroke is a frequent cause of disability in U.S.A. (200.000/year) and ~ 85% are ischemic while ~ 15% are primary hemorrhages. An ischemic deficit without radiologic evidence of an infarction is termed TIA. After 24 h, the neurological deficit is termed Stroke.

The aim of this study is to underline the effect of low dose of Rotigotine patches 2 mg/24 h, a complete dopamine agonist D3>D2>D1 with continuous dopaminergic stimulation through the transdermal administration, in elderly with recent stroke and vascular Parkinsonism about quality of life and adherence to rehabilitation therapy.

In a recent review Sami et al. suggest that administration of dopaminergic agents have long been associated with improvements of neuropsychiatric outcomes [1]. More data in the literature underlines that administration of dopaminergic agents have long been associated with improvements of outcome after stroke and show that patient care, in comprehensive stroke units followed by rehabilitation service, improves neurological outcomes and reduces mortality.

Materials and Methods

We have enrolled 6 elderly patients (3 males and 3 females, range age 60 – 95 years) with recent ischemic stroke that have developed a vascular Parkinsonism. We have evaluated quality of life and cognitive function with UPDRS part III, MMSE, ADL, IADL and Morinsky Scale. At the same time we have evaluated the adherence to therapy and timing of rehabilitation therapy before and post-administration of Rotigotine 2 mg/24 hours.

We have studied enrolled patients using international scale and standard Holter-ECG to register HR variability. In a recent review Valderiolla et al. suggest the effects of Night-Time Rotigotine on nocturnal symptoms in Parkinson's disease [2].

Statistical analysis is performed using Sigmastat analysis program version 3.5. We have excluded patients in therapy with anti-arrhythmic drugs to avoid bias in HR-variability. All the patients provided written informed consent. Eligibility requirements at screening included age of at least 18 years.

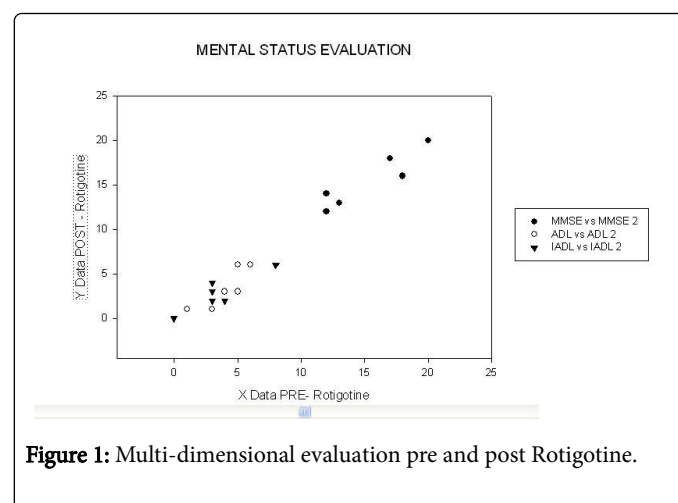


Figure 1: Multi-dimensional evaluation pre and post Rotigotine.

Results

Preliminary data are about 6 patients with vascular Parkinsonism (3 F and 3 M) with mean age 78 yrs (range 70 to 86 yrs) after treatment with Rotigotine 2 mg/24 h. At the end of treatment we obtained a statistically significant correlation about improvement of MMSE from a basal value. Siilar aspects are noted about Multi-Dimensional Evaluation (IADL AND UPDRS PART III) (Figure 1), severity of oxygen Desaturation and Obstructive Sleep Apnea Syndrome (OSAS) [3]. Two patients are excluded: 1 female for severe cognitive impairment, MMSE, ADL and IADL not administrable and 1 male for hemorrhagic complication. Further and follow-up period are needed to have more significant results (Figure 2).

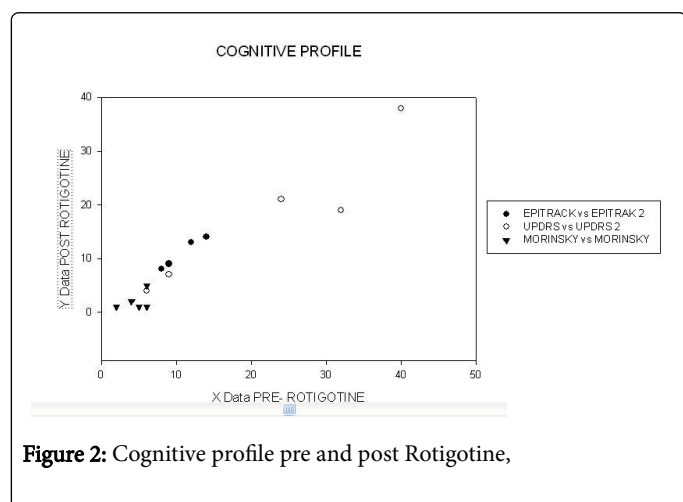


Figure 2: Cognitive profile pre and post Rotigotine,

Discussion

Our study was designed to provide evidence to support the replacement of rotigotine patches in the management of Parkinsonism due to acute ischemic stroke. The mean dose of rotigotine that was used in our study (2 mg daily) was lower than the doses used in the Parkinson diseases and Parkinsonism and that showed a benefit with rotigotine patches 2 mg/24 h in patients with mild to moderate symptoms of Parkinsonism due to acute ischemic stroke (Figure 3).

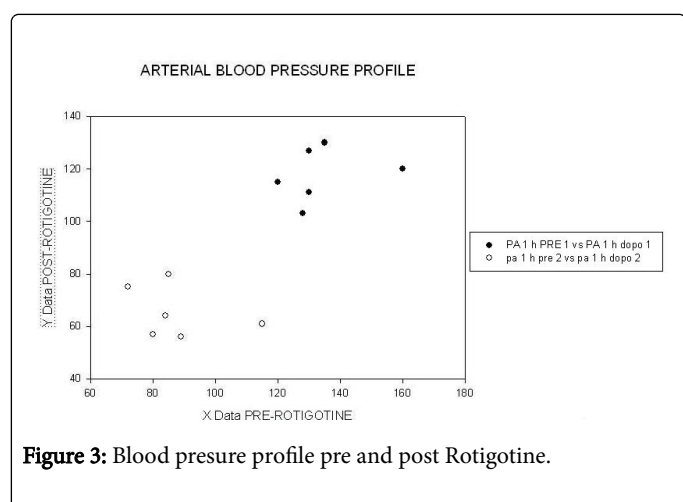


Figure 3: Blood presure profile pre and post Rotigotine.

This experience led us to prescribe rotigotine patches 2 mg/24 h despite its once-daily efficacy in patients with Parkinsonism and recent

ischemic stroke. Rotigotine patches 2 mg/24 h were effective and well-tolerated when used in routine clinical practice. (Table 1).

	MMS E	ADL	IADL	UPDRS	OSAS	SO2 %
Correlation (0-1)	C= 0,923	C= 0,844	C= 0,890	C= 0,944	C= 0,998	C= 0,840
P Value (< 0,05)	P = 0,008	P = 0,034	P= 0,017	P= 0,015	P= 0,0001	P= 0,036

Table 1: Descriptive Statistics: Analysis of preliminary data.

Preliminary data shows that there are not significant correlations behind Morinsky scale (due to different drugs management during hospitalization period), number of swallows for minute, OSAS, and Heart Rate Variability (Table 2).

In literature there are a lot of reviews that describe the different positive effects of Rotigone: improves sleep in Parkinson's disease [6] and improves sleep fragmentation in Parkinson's disease [7].

	Morinsky	Swallowing	RR var	SDN N2	PNN 50	P/V SIST	P/V DIA
Correlation (0-1)	C= 0,426	C= 0,542	C= 0,710	C= 0,539	C= 0,786	C= 0,239	C= -0,111
P Value (< 0,05)	P= 0,400	P= 0,266	P= 0,290	P= 0,461	P= 0,214	P= 0,648	P= 0,835

Table 2: Descriptive Statistics: Analysis of preliminary data.

We have noted an improvement of clinical neuropsychiatric outcomes: especially the apathy [5], aphasia, dysphagia [4] and anhedonia but without statistically significant correlation.

Moreover is described the neurophysiological effects of transdermal Rotigotine in atypical Parkinsonism [8] (Figure 4).

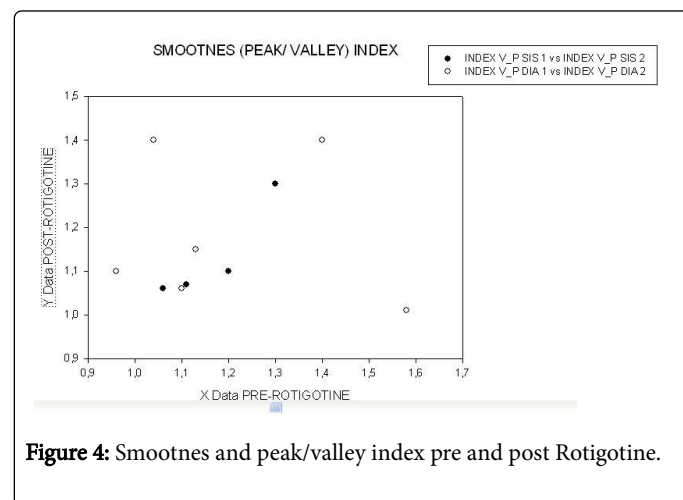


Figure 4: Smootnes and peak/valley index pre and post Rotigotine.

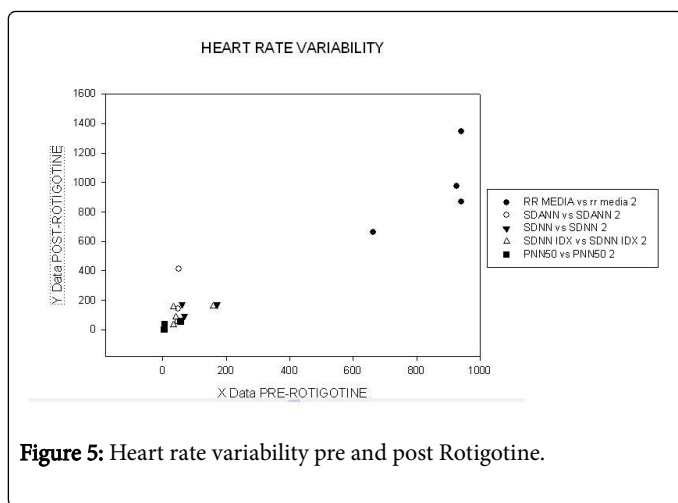


Figure 5: Heart rate variability pre and post Rotigotine.

Only 0.6% of patients did not complete the follow-up because of adverse events. Hence our results are not applicable to a broad spectrum of patients with Parkinsonism due to acute ischemic stroke (Figure 5).

Conclusion

Rotigotine could be a new useful approach in the treatment of elderly patients with recent ischemic stroke and vascular Parkinsonism which can lead to an akinesia with the need to start rehabilitation therapy. Our preliminary data gives comfortable results but, at this time, we have enrolled only few patients to give conclusive results.

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