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Case Report

Managing Parkinsonism in a Schizophrenic Patient

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Abstract

A schizophrenic patient with Parkinsonism could not tolerate levodopa-carbidopa without aggravating her psychosis. However, the rotigitine patch, up to 8 mg every 24 hours markedly improved extrapyramidal features without worsening her schizophrenia.

Keywords: Parkinsonism;Schizophrenia; Rotigitine

The receptor profile of rotigitine patch may be favorable for patients who have both Parkinsonism and schizophrenia. The dopamine hypothesis for schizophrenia proposes that activation of the D2 receptor is especially important; indeed, D2 receptor partial antagonists have been a mainstay in the treatment of schizophrenia [1,2]. Bromocriptine, a fairly specific D2 receptor agonist, is notorious for precipitating psychoses in patients with schizophrenia or schizoaffective disorder [3]. There is emerging evidence that the D1 receptor antagonists may also play a role in the treatment off schizophrenia [4]. Animal studies indicate that the site of dopaminergic activity is also relevant: atypical neuroleptics may act more selectively on mesolimbic and mesocortical rather than on striatal dopamine receptors [5]. Levodopa is converted into dopamine, which acts on all dopamine receptor subtypes. Activation of D1, D2 and especially D3 receptors in the striatum are relevant to the treatment of Parkinsonism [6]. Rotigitine is a novel nonergolinic dopamine receptor agonist with preferential binding to the D3 receptor subtype; affinity for the other dopamine receptors is 8-20 times less [7,8]. For this reason we tried the rotigitine patch on a patient with severe Parkinsonian features and a history of schizophrenia.

Illustrative Case

The patient, a 67-year-old woman with a longstanding history of schizophrenia developed disabling Parkinsonian features over the past 2 years. These included rigidity, soft voice and

immobile facies, episodes of immobility, increased tone, bradykinesia, postural instability, marked camptocormia and a festinating gait. She used a rollator walker, which helped reduced her fall risk. She had been treated with perphenzine form 1992 till 2003 and then was on Risperidone from 2003 until 2014 when quetiapine was introduced in addition to the risperidone. To reduce the potential parkinsonian effects of her most recent neuroleptics she was treated with clozapine, but there was no improvement in motor signs and symptoms. When levodopa-carbidopa was used (the only antiparkinsonian drug used up to that time), the patient could not tolerate more than one 100/25 tablet/day as this exacerbated her paranoia and other psychotic symptoms. It was then decided to try the rotigitine patch at 4 mg/24 hours. She tolerated this well, but still had marked parkinsonian features. These improved when the dose was increased to 6 mg/24 hours, including gait, stability and tone and further when the dose was increased to 8 mg/day. She continued have festination when walking, however, and still required the rollator walker. The "freezing "episodes" and tone were markedly improved along with bradykinesia. It had taken her more 15 minutes to peel a banana before rotigitine, but she could eat her breakfast with near normal speed after the 6 mg patch was used. Her mental status remained satisfactory with no worsening of her schizophrenic symptoms.

Discussion

DiFabio and colleagues used the transdermal rotigitine patch (mean dose 3.2 mg/24hours; range 2-8 mg/24 hours) on 20 psychotic patients who had developed neuroleptic-induced extrapyramidal features (EPF) [9]. They found that all but one of the patients had improvement in EPF without exacerbation of psychosis. They attributed this to not only the dopamine receptor profile of rotigitine, but mainly to its serotonin 5-$HT1_A$ agonism in the limbic regions and raphe nuclei [8,10]. This action was attributed to reduction in dyskinetic movements in their patients. Our patient differed somewhat from theirs in that she had very advanced Parkinsonian features and did not have dyskinetic movements.

While we cannot be entirely certain that our patient had idiopathic Parkinson disease, as she required continued use of neuroleptic drugs, the severity of her neurological impairment seemed out of proportion to neuroleptic drug therapy and did not improve with the switch to Clozapine. We did not have access to specialized imaging technology such as dopamine transporter ligand single photon computed tomography (DAT-SPECT), which may have established underlying Parkinson disease [11]. In any case, whether Parkinsonism is drug-induced or naturally occurring, the use of the rotigitine is worth considering for symptomatic relief of extrapyramidal symptoms in schizophrenic patients while lessening the risk of exacerbating psychosis.

There are no head-to-head comparisons of rotigitine with other dopamine agonists, but a clinical trial is warranted to help determine optimal therapy in managing EPF in patients with a history of psychosis.

Conflict of Interest

The authors declare no conflict of interest.

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