

## Hypersexuality induced by rasagiline in monotherapy in Parkinson's disease

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Dear Editor,

Hypersexuality is one of the earliest described examples of ICD in PD. It is well established that ICD's prevalence in PD is higher than in general population. It varies between 8 and 28 %, according to the type of samples, methodology, and diagnostic criteria [1]. Some risk factors have been described. These include biological vulnerability, psychiatric background with impulsive features, male sex, early onset of PD, longer disease duration, and the most common studied one, substitutive dopaminergic treatment, especially dopamine agonists [2]. Reporting this case, we want to raise awareness of hypersexuality as an exceptional side effect associated with rasagiline treatment.

We present a 74-year-old priest man with 3-year history of idiopathic Parkinson's disease, without any other relevant conditions, who was initially treated with rasagiline alone at a dose of 1 mg/day. He has a slight trembling phenotype and a Hoehn and Yahr stage 1.5. He was an introspective and quite obsessive person, but he did not have any premorbid history of neither psychiatric condition nor abnormal sexual behavior. His cognitive condition was normal with a score of 28 in Montreal Cognitive Assessment (MoCA). Two years after initiating rasagiline, he started on typical symptoms of hypersexuality, mostly concerning obsessive sexual thoughts and desires without any abnormal impulsive behavior. These thoughts did not disturb his ordinary life. Even though his insight was preserved, he took 1 year to confess his problem to us, basically due to moral issues originated from his profession.

All these symptoms stopped immediately after rasagiline discontinuation. Three months later, he is being treated only with levodopa.

### Discussion

We defined hypersexuality as an ICD characterized by dysfunctional preoccupation with sexual thoughts, frequent demands, and desire for sexual practice. It often includes habitual use of sex lines and Internet pornography or contact with sex workers, which have adverse consequences not only for the patient but also for their partners or carers [3].

Rasagiline is a selective irreversible monoamine oxidase B (MAO-B). By blocking this enzyme, the degradation of dopamine is prevented, and consequently, it increases its synaptic availability [4]. Among the most common side effects are headaches, insomnia, and xerostomia.

Dopamine is recognized as a mediator of reinforcement in the mesolimbic area, is implicated in drug addiction, and is also recognized to play an important role in the regulation of sexuality [5]. However, hypersexual behavior has also been described as part of a general loss of impulse control associated with lesions in the prefrontal cortex.

A possible explication why MAO-B can induce ICD would be the increasing stimulation of postsynaptic dopamine receptors present in the amygdala and limbic lobe or activation of still dysfunctional cortico-basal circuits linking the orbitofrontal and anterior cingulate cortex via head of caudate.

Sexual behavior usually appears shortly after the initiation of treatment [5]. In our case, the diagnosis occurred 2 years later. One possible explanation would be that our patient did not reveal his symptoms immediately because

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of his religion ideology. Another point that seems to indicate an association between HS and rasagiline is the improvement of symptoms after drug interruption.

We are presenting an isolated case of hypersexuality induced by rasagiline. Some more studies should be needed to establish a solid relationship between both and at the same time to describe the most common risk factors.

## Conclusions

Although the mechanism of why rasagiline induces hypersexuality is still misunderstood, there is increasingly more evidence of this association. It is for this reason why clinicians must be aware of these possible side effects as well as some other risk factors that can occur and they should ask patients about their symptoms to help them to detect hypersexuality. This is important to be recognized, because it significantly contributes to disability and poor quality of life.

## Compliance with ethical standards

**Conflict of interest** We declare that we have no conflicts of interest in the authorship or publication of this contribution.

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