

## ADVERSE DRUG REACTION

## Risperidone implicated in the onset of tardive dyskinesia in a young woman

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### Abstract

**The aim of this case report is to highlight that risperidone may cause and ameliorate tardive dyskinesia. A 16 year old white women with a 12 month history of schizophrenia, developed buccolingual masticatory tardive dyskinesia after receiving risperidone 6 mg. She had received small dosages of typical antipsychotics before and during receiving risperidone for short periods. Recommencement of risperidone with 2 mg and increasing to 6 mg resulted in improvement in tardive dyskinesia and up until now she remains free of any abnormal involuntary movements.**

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Risperidone, a benzisoxasole derivative, is a new atypical antipsychotic that has potent and long lasting 5HT<sub>2</sub> antagonism.<sup>1</sup> It is believed to have similar clinical efficacy to typical antipsychotics such as haloperidol, but with substantially fewer extrapyramidal side effects.<sup>1, 2</sup> This property is attributed to risperidone posing a smaller risk for the development of tardive dyskinesia<sup>3</sup> especially in doses above 6 mg/day.<sup>4</sup> Increasing clinical experience suggests that it may have antidyskinetic properties in the dose range of 6–16 mg/day<sup>5</sup> particularly in buccolinguomasticatory syndrome.<sup>6</sup>

We report a case of tardive dyskinesia caused by risperidone in a young woman.

### Case report

A young women, aged 16, was first seen in the psychiatric outpatient department in November 1995 with a 12 month history of deteriorating performance at school, isolation, and withdrawal associated with low mood, suicidal thoughts, and a two month history of third person type auditory hallucinations and paranoid ideation. Her mother was receiving treatment for paranoid schizophrenia. A diagnosis of paranoid schizophrenia was made and she was started on thioridazine 25–50 mg at night and zopiclone 7.5 mg as required. She responded partially to this regimen over the next two months. The dose of thioridazine could not be increased because of excessive sedation and anticholinergic side effects. Consequently, 2 mg trifluoperazine was tried briefly but was stopped because of sedation. Finally risperidone was introduced and its dose was

slowly titrated up to 4 mg daily over the next five months. A significant reduction in auditory hallucination, paranoid ideation, and social withdrawal was noticed.

In October 1996, she developed involuntary buccolingual masticatory movements, jerky non-repetitive movements involving both arms and fingers which was diagnosed as tardive dyskinesia according to the *Diagnostic and Statistical Manual of Mental Disorders IV* (American Psychiatric Association, 1995). Thorough neurological examination and investigation including magnetic resonance imaging did not show any abnormality in the brain. She was not taking oral contraceptives and biochemical investigations were within normal limits. The dose of risperidone was increased to 6 mg daily over the next eight months. The involuntary movements progressively worsened and some residual psychotic symptoms persisted. The treating psychiatrist added trifluoperazine 10 mg to risperidone in June 1997 which was finally abandoned after six months because of incapacitating involuntary movement and persistence of auditory hallucination. Finally, she was started on flupenthixol depot 20 mg fortnightly.

After receiving two fortnightly doses of flupenthixol the patient was admitted in January 1998 with exacerbated auditory hallucination, delusions of reference, persecutory delusions, low mood, and suicidal thoughts. The involuntary movements had worsened involving arms and legs, flicking movements of fingers, and writhing of the trunk and neck. Risperidone 2 mg per day was restarted. A significant reduction in the movements was seen the next day and these were barely noticeable within six days. Psychotic symptoms also decreased remarkably over one week and she was discharged on risperidone 6 mg daily. She remained on risperidone 6 mg for 12 months and was free of psychotic symptoms and tardive dyskinesia. She did not receive any anticholinergic medication while receiving risperidone.

### Discussion

This young woman developed tardive dyskinesia while receiving risperidone. Significant features in this case are that tardive dyskinesia was caused by risperidone while she was on a so-called “antidyskinetic dose” and tardive dyskinesia resolved completely after a retreatment with risperidone; this time she was on a smaller dose.

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The patient developed tardive dyskinesia after receiving antipsychotics for 12 months and while she was still on risperidone. Recognised risk factors for the development of tardive dyskinesia include a minimum cumulative exposure of three months to neuroleptics, increasing age, and female gender,<sup>7</sup> high dosage of antipsychotics, concomitant administration of antipsychotics and antiparkinsonian drugs,<sup>8</sup> and presence of affective symptoms.<sup>9</sup> For such high risk patients newer antipsychotics such as risperidone are preferred. At the age of 16 our patient did not have any risk factors for developing tardive dyskinesia except female gender. Even though she received conventional antipsychotics initially she was exposed to risperidone for nine months as opposed to two months on thioridazine and few days on trifluoperazine before developing tardive dyskinesia. In other words her exposure to conventional antipsychotics was not long enough to be attributed as the cause for tardive dyskinesia. Furthermore, there was a gap of nine months between discontinuation of other antipsychotics and the onset of tardive dyskinesia. We, therefore, suggest that the tardive dyskinesia was caused by risperidone.

So far four cases of tardive dyskinesia caused by risperidone have been reported.<sup>10-13</sup> It is interesting to note that all except one<sup>13</sup> who developed tardive dyskinesia with risperidone, including the index patient, have been women under the age of 50 years. The only man reported to have developed tardive dyskinesia with risperidone<sup>13</sup> had emergent dyskinesia, as opposed to other reports where tardive dyskinesia appeared while the patients were on risperidone. It would be wrong to draw any conclusions from these isolated case reports but the trend of risperidone targeting women for tardive dyskinesia is worth further investigation because conventional antipsychotics are likely to cause tardive dyskinesia in elderly women.<sup>7</sup>

The symptoms of tardive dyskinesia subsided with reintroduction of risperidone. On this occasion our patient was on a much

smaller dose of risperidone. Similar findings where tardive dyskinesia may be caused and resolved by the same drug have been reported with the conventional antipsychotics and are put forward to support the dopamine receptor supersensitivity hypothesis of tardive dyskinesia.<sup>1</sup> It will be interesting to explore whether a similar mechanism operates with risperidone.

To conclude, we report a case of tardive dyskinesia caused by risperidone in a young woman with a brief exposure to typical antipsychotics while she was on the so-called "antidyskinetic dose" of risperidone. The tardive dyskinesia resolved after reinstatement of risperidone in a smaller dose. The aetiological hypothesis of tardive dyskinesia called "receptor hypersensitivity" may not be generalised to risperidone because of differences in receptor activity but is worth exploring.

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