

ACUTE EXTRAPYRAMIDAL SYMPTOMS FOLLOWING ABRUPT DISCONTINUATION OF PROPRANOLOL

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ABSTRACT

A case of acute extrapyramidal manifestations consisting of dystonia and akathisia following abrupt discontinuation of propranolol is reported. She responded well to oral propranolol and intramuscular diazepam. Extrapyramidal symptoms have commonly been associated with acute or chronic administration of neuroleptic drugs. There have been reports of a substantial number of cases with similar clinical characteristics associated with tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors. Although it is known that beta-adrenoceptor antagonists are effective in the treatment of extrapyramidal symptoms, especially akathisia, there has been no previous report of such symptoms induced by abrupt withdrawal of these drugs. Although she had been on low dose amitriptyline and had discontinued this medication long before, prolonged use of amitriptyline may have had a predisposing role in the development of these symptoms.

MJIRI, Vol. 14, No. 3, 305-306, 2000.

Keywords: Propranolol; Extrapyramidal symptoms; Beta-adrenoceptor antagonists.

INTRODUCTION

Extrapyramidal symptoms include acute dystonias, akathisia, Parkinson's syndrome, and tardive dyskinesia. These symptoms are common manifestations of neuroleptic drugs. Other drugs inducing similar clinical characteristics include tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors.¹

Although it is known that beta-adrenoceptor antagonists are effective in the treatment of extrapyramidal symptoms, especially akathisia,² there has been no report of such symptoms induced by abrupt withdrawal of these drugs.

CASE REPORT

A 30 year old lady presented with agitation, restlessness, nausea, and spasmodic contraction of jaw muscles causing involuntary deviation of the lower jaw to the left.

She described a feeling of "being pulled down by gravity." She had never experienced such symptoms before. Thorough physical examination with special focus on the nervous system was unremarkable except for the involuntary contraction of jaw muscles and a fine tremor in her extremities.

The patient has been on long-term propranolol 10 mg twice daily for mitral valve prolapse. She had stopped using her medication two days before this problem due to the belief that she may become addicted to the drug. She also had a history of using amitriptyline 25 mg before sleep for insomnia, but she had stopped using this drug long before. She had no other significant drug history.

The patient was managed with 10 mg intramuscular diazepam and 10 mg oral propranolol, and was symptom free in two hours. She was instructed to continue her propranolol as usual.

DISCUSSION

Propranolol has been used for the treatment of neuro-

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leptic induced extrapyramidal manifestations, especially akathisia.^{2,3} Other extrapyramidal manifestations such as tardive dyskinesia and pseudoparkinsonism have also been well managed with propranolol.⁴⁻⁷ It has also shown effectiveness in ameliorating levodopa-induced ballistic and choreic dyskinesia in Parkinson's disease.⁸ Reports on use of other beta-adrenoceptor antagonists are more controversial but trends are toward their efficacy and safety.^{9,10}

Extrapyramidal symptoms have commonly been associated with acute or chronic administration of neuroleptic drugs. There have been reports of a substantial number of cases with similar clinical characteristics associated with tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors.¹ There has been no report of extrapyramidal symptoms following withdrawal of propranolol. This reported patient is a case of acute extrapyramidal manifestations consisting of dystonia (spasmodic contraction of jaw muscles causing involuntary deviation of the lower jaw to the left) and akathisia (agitation, restlessness, and a feeling of "being pulled down by gravity") following abrupt discontinuation of propranolol. She responded well to oral propranolol and intramuscular diazepam. The coincidence of propranolol withdrawal and these symptoms, the finding of no other cause or events to explain the condition, and the patient's excellent response to propranolol are convincing that these extrapyramidal symptoms were, at least in part, related to propranolol withdrawal. More reports may establish this relationship.

Tricyclic antidepressants such as amitriptyline are also associated with extrapyramidal symptoms.^{1,11} These symptoms are often dose-related, and respond to antiparkinsonian agents or propranolol. In some cases, they can disappear even though the same dose of tricyclic antidepressant is continued. Although she had been on low dose amitriptyline therapy and had discontinued this medication long before, prolonged use of amitriptyline may have had a predisposing role in the development of these symptoms.

REFERENCES

1. Gill HS, DeVane CL, Risch SC: Extrapyramidal symptoms associated with cyclic antidepressant treatment: a review of the literature and consolidating hypotheses. *J Clin Psychopharmacol* 17(5): 377-89, Oct, 1997.
2. Holloman LC, Marder SR: Management of acute extrapyramidal effects induced by antipsychotic drugs. *Am J Health Syst Pharm* 54(21): 2461-77, Nov 1, 1997.
3. Kulik AV, Wilbur R: Case report of propranolol (Inderal) pharmacotherapy for neuroleptic-induced akathisia and tremor. *Prog Neuropsychopharmacol Biol Psychiatry* 7(2-3): 223-5, 1983.
4. Chaudhry R, Radonjic D, Waters B: Efficacy of propranolol in a patient with tardive dyskinesia and extrapyramidal syndrome. *Am J Psychiatry* 139(5): 674-6, 1982.
5. Wilbur R, Kulik FA: Propranolol (Inderal) for tardive dyskinesia and extrapyramidal side effects from neuroleptics: possible involvement of beta-adrenergic mechanisms. *Prog Neuropsychopharmacol* 4(6): 627-32, 1980.
6. Kulik FA, Wilbur R: Propranolol for tardive dyskinesia and extrapyramidal side effects (pseudoparkinsonism) from neuroleptics. *Psychopharmacol Bull* 16(3): 18-9, July 1980.
7. Gelenberg AJ: Treating extrapyramidal reactions: some current issues. *J Clin Psychiatry* 48 Suppl: 24-7, Sep, 1987.
8. Carpentier AF, Bonnet AM, Vidailhet M, Agid Y: Improvement of levodopa-induced dyskinesia by propranolol in Parkinson's disease. *Neurology* 46(6): 1548-51, 1996.
9. Kikuchi T, Uwahodo Y, Tottori K, Nakai M, Morita S: The attenuating effect of carteolol hydrochloride, a beta-adrenoceptor antagonist, on neuroleptic-induced catalepsy in rats. *Psychopharmacology Berl* 131(2): 108-14, May, 1997.
10. Wells BG, Cold JA, Marken PA, et al: A placebo-controlled trial of nadolol in the treatment of neuroleptic-induced akathisia. *J Clin Psychiatry* 52(6): 255-60, 1991.
11. Vandel P, Bonin B, Leveque E, et al: Tricyclic antidepressant-induced extrapyramidal side effects. *Eur Neuropsychopharmacol* 7(3): 207-12, Aug, 1997.