Letter to the Editor

Bilateral ballism induced by ibuprofen in a schizophrenic patient

Sir,

Administration of non-steroidal anti-inflammatory drugs (NSAID) has been rarely reported to produce involuntary movement disorders.^{1,2,3} We report a 68 year old woman with a 30-year history of paranoid-hallucinatory schizophrenia (Type 1 syndrome)⁴ in whom administration of ibuprofen produced acute bilateral ballistic movements.

The patient had been on a neuroleptic (trifluoroperazine hydrochloride, 6 mg/day) for 10 years. Approximately 3 years ago she developed neuroleptic-induced tardive dyskinesia. Trifluoroperazine was discontinued and she was placed on benzotropine mesylate (3 mg/day) which was ineffective in controlling the involuntary dyskinetic movements. Approximately 6 weeks before our evaluation she was placed on ibuprofen (1800 mg/day) for osteoarthritic pain. Within 24 hours the patient noticed a marked exacerbation of the orofacial dyskinesia and shortly thereafter developed ballistic movements characterized by violent flinging of both arms and head that persisted during sleep. These ballistic movements as well as the oro-facial involuntary dyskinesias persisted for one week after which they gradually diminished in severity over 72 hours following discontinuation of the drug. On recent evaluation the patient disclosed the typical symptoms of tardive dyskinesia associated with akathisia.

The temporal association between the development of the ballistic movements with initiation of ibuprofen therapy and cessation of the movements upon withdrawal of the drug implicates ibuprofen as the causative agent. There was no family history of involuntary movements and laboratory investigations proved normal.

Administration of NSAID has been reported to produce dyskinetic movements^{1,2} and exacerbate parkinsonism³ as well as ameliorate parkinsonian symptoms,⁵ suggesting that these agents may exert both dopaminergic and anti-dopaminergic effects on striatal neurones. In addition, prostaglandin inhibitors have been reported to augment central and peripheral adrenaline turnover in the rat.^{6,7}

The current neurochemical concept of tardive dyskinesia implicates post-synaptic dopamine receptor supersensitivity in the pathophysiology of the disorder.⁸ Ibuprofen could have produced the ballistic movements by acting as a dopamine agonist⁵ in already supersensitive striatal post-

synaptic dopamine receptors leading to enhancement of dopaminergic activity.

Although involuntary movement disorders have rarely been associated with NSAID, we caution their usage in patients with underlying disorders of the basal ganglia owing to their potential increased susceptibility to develop dyskinetic movements.

Reuven Sandyk,
Gavin Awerbuch,
Steven Z. Rapcsak,

Departments of Neurology and Pharmacology
University of Arizona
Tucson, Arizona 85724, U.S.A.

References

1. Redmond, A.D. Dyskinesia induced by mefenamic acid. *J R Soc Med* 1981, **74**: 558–559.
2. Barbaro, A.C. Extrapyramidal symptoms following mefenamic acid. *JR Soc Med* 1983, **76**: 435.
3. Sandyk, R. & Gillman, M.A. Acute exacerbation of Parkinson's disease with sulindac. *Ann Neurol* 1985, **17**: 104–105.
4. Shelley, R.K. & Waksh, N. The biochemistry of schizophrenia – A review. *Ir Med J* 1985, **78**: 139.
5. Anderson, C.B. & Larson, E.J. Diflunisal in idiopathic Parkinson's disease. *Neurology (NY)* 1984, **34**: 400.
6. Hedqvist, P. Effect of prostaglandins and prostaglandin synthetase inhibitors on norepinephrine release from vascular tissue. In Robinson, H.J. (ed) *Prostaglandin Synthetase Inhibitors*. Raven Press, New York, 1974, pp 303–309.
7. Hedqvist, P. Prostaglandin action on transmitter release at adrenergic neuroeffector junctions. In Samuelsson, B. & Paoletti, R. (eds) *Advances in Prostaglandin and Thromboxane Research*, vol. 1. Raven Press, New York, 1976, pp 357–363.
8. Klawans, H.L., Tanner, C.M. & Barr, A. The reversibility of permanent tardive dyskinesia. *Clin Neuropharmacol* 1984, **7**: 153–159.