of his treatment with intramuscular chlorpromazine (200 mg/day). The clinical features and laboratory results were typical for NMS, including extreme muscle rigidity, severe dysautonomic disturbances, and laboratory findings of rhabdomyolysis. In spite of the discontinuation of chlorpromazine the patients's condition deteriorated over the following week. On the seventh day of NMS a bilateral modified ECT was administered which was followed by a dramatic improvement in hyperpyrexia, diaphoresis and level of consciousness. The patient received a course of five ECT treatments within 2 days. When ECT was stoped fever and stupor recurred. Four further sessions of ECT were administered resulting in a complete recovery.

A survey of the literature revealed four case reports of successful treatment of NMS by ECT, (Powers *et al*, 1976; Jesse & Andersen, 1983; Lazarus, 1986). In another patient (Regestein *et al*, 1977) ECT during NMS was followed by permanent brain damage. This patient, however, had suffered from cardiac arrythmia before ECT, and developed ventricular fibrilation followed by brain anoxia during the ECT. The disastrous outcome did not result, therefore, from a direct action of ECT on the brain. Besides specific contra-indications for ECT, this procedure seems an effective treatment for NMS. The ability of ECT to increase post-synaptic receptors' sensitivity for dopamine (Lerer & Balmaker, 1982) might explain its beneficial effect in NMS. This explanatory model is in line with the aetiological role attributed to an acute reduction in CNS dopamine activity in NMS.

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Sir: We were interested to read the review on the neuroleptic malignant syndrome by Abbott and Loizou (*Journal*, January 1986, **148**, 47–51). Whilst the quotation from Baastrup and colleagues (1976) accurately reflects their finding that none of the 425 patients in their review treated with both lithium carbonate and haloperidol developed the neuroleptic malignant syndrome, we were intrigued to note that the authors had omitted to mention the original report by Cohen & Cohen (1974) which had prompted Baastrup *et al*, to conduct their review. Cohen & Cohen described four acutely agitated manic patients receiving the lithium and haloperidol combination who developed a toxic syndrome which they attributed to a specific haloperidol/lithium interaction.

However, Jefferson & Greist (1980) reviewed the original case reports and noted that the clinical descriptions resembled the neuroleptic malignant syndrome. This similarity has also been noted in other publications (e.g. Frankel & Spring, 1982). Since Cohen & Cohen's original paper, a number of other case reports have appeared in the literature, and other neuroleptics have been implicated in presumed toxic interactions with lithium. Having closely examined 26 similar reports of patients treated with haloperidol and lithium (Hone *et al*, 1985) we concluded that at least seven of the 26 met the criteria for the diagnosis of neuroleptic malignant syndrome, including the four patients originally reported by Cohen & Cohen.

In summary, we can find little or no support for the lithium/haloperidol interaction hypothesis. We consider that there is a need for a detailed epidemiological enquiry to identify the incidence of neurotoxic events resulting from the concomitant use of lithium and neuroleptics, together with other toxic sequelae related to neuroleptic usage. In conducting such a survey, we would hope to provide more information on these phenomena – be they attributable to lithium toxicity, drug interactions, or the neuroleptic malignant syndrome.

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Anticholinergic Anti-Parkinson Medication for Neuroleptic-induced Extrapyramidal Side Effects

Sir: We have recently received a piece of promotional literature entitled *Disipal in the Neuroleptic Syndrome*. The content of this document conveys a general impression that orphenadrine is a safe drug to use for the treatment of drug-induced extrapyramidal symptoms both in acute situations and for long term maintenance. We find the document biased and against all current scientific opinion on the subject and would like to counter some of the arguments presented in it.

Extrapyramidal side-effects frequently accompany neuroleptic treatment. In fact, anticholinergic agents used to reduce these symptoms are the commonest form of concurrent medication with neuroleptic therapy. There is, however, much debate about the adverse effects of combined therapy with these agents. It has been claimed that their use can result in exacerbation of psychosis, a delay in symptom improvement in patients with acute schizophrenia, and a predisposition to the development and/or deterioration of tardive dyskinesia. Many studies have reported that co-administration of anticholinergic drugs resulted in lower blood levels of neuroleptics. In others, although no differences were observed, combined therapy did have clinical implications (Bamrah *et al*, 1986). Clinically stable patients on neuroleptics do not normally show accompanying extrapyramidal symptoms except when dosages are increased or if extraneous factors lead to unpredictable increases in blood levels. As clinicians, therefore, we do not see the need for long-term medication especially if this is going to be associated with other interactions.

The document alleges that orphenadrine withdrawal may precipitate "a pronounced depressive state" in patients on combined haloperidol-orphenadrine therapy (Altamura *et al*, 1983). Whereas the relationship of depression with haloperidol is controversial, it is not unreasonable to assume that stopping a "mood elevating" drug could cause a rebound precipitation of dysphoric mood. One does not have to invoke "pharmacological interaction between orphenadrine and haloperidol leading to increased bioavailability of the latter" to explain this phenomenon. It seems to us irresponsible to elevate their "mood lightening" properties to a position of clinical relevance since these are the very properties which may give them their drug-dependence potential.

These drugs have a powerful anticholinergic action which can summate with the anticholinergic action of neuroleptics to produce severe constipation or ileus, urinary hesitancy or retention, and intolerable dry mouth and blurring of vision (Lader, 1980). Besides, anticholinergics are themselves known to produce toxic psychoses (Shader & Greenblatt, 1971). Therefore, their use should be tempered with caution. Finally, if prescribed with abandon they would only provide the depressed patient with another means of self extermination.

We accept that the anticholinergic anti-Parkinsonian agents are valuable in clinical settings where it is necessary to relieve acute extrapyramidal symptoms following neuroleptic therapy, but we do not feel that the majority of patients require this treatment for more than three to four months. A literature review suggests that only a third of patients on maintenance treatment have any real need for this additional medication to control extrapyramidal symptoms, with the majority of surveys suggesting a substantially smaller proportion (Johnson, 1985).

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Lithium Induced Hypothyroidism Presenting with Carpal Tunnel Syndrome

Sir: We describe a patient presenting with a recognised but unusual symptom of hypothyroidism which to our knowledge has not previously been reported in association with lithium.

Case Report: The patient was a 43 year old Kenyan Asian woman with a long-standing history of manic-depressive psychosis who had been treated with lithium for 10 years.