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Electro-convulsive therapy in neuroleptic malignant syndrome

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Summary – A middle aged lady having Manic-depressive psychosis developed neuroleptic malignant syndrome (NMS) on haloperidol. The emergent psychosis after recovery from NMS resolved with judicious use of electro-convulsive therapy (ECT) followed by gradual reintroduction of antipsychotics is reported here.

Neuroleptic malignant syndrome (NMS), is a life threatening complication of central nervous system dopamine blockade. Phenothiazine and butyrophenones are most frequently implicated in this syndrome. Supportive care, discontinuation of neuroleptic drugs, and administration of bromocriptine are the keys to the management. However, after recovery from NMS, patients still remain psychotic and then the treatment of these patients poses a dilemma. Rechallenge with neuroleptic drugs carries a significant risk of recurrence of this potentially fatal condition (Well *et al*, 1988). Use of alternative drugs such as lithium (Shalev and Manitz, 1986) and carbamazepine (Peet and Collier, 1990) have been reported. Use of electro-convulsive therapy (ECT) in NMS has not been reported so far. We report a patient who developed NMS on haloperidol. The emergent psychosis after recovery from NMS resolved with judicious use of ECT and gradual reintroduction of antipsychotics.

CASE REPORT

MY, 52-year old Malay housewife, a known case of manic depressive psychosis, presented with a 2-month history of irritability, poor sleep with early morning awakening and excessive talking. Her mental status examination revealed distractibility, irritability with pressure of speech and grandiosity. She was admitted and antipsychotic medications were started after excluding any organic disorder. Unfortunately, the patient refused

all oral medications; hence, medications were given intramuscularly. By the sixth day she was receiving a total of 50 mg haloperidol and 200 mg chlorpromazine im/day in divided doses. On the ninth day she developed NMS. Her sensorium started to deteriorate, she was stuporous, her blood pressure dropped with postural hypotension and her body temperature increased to above 39°C. Supportive treatment was given which included intranasal oxygen and maintenance of intravenous fluids and electrolytes. The other investigations were within normal limits and not suggestive of any infection, except for mild hypoxaemia detected in the arterial blood gas and a stepwise increase in creatinine phosphokinase (CPK). The CPK levels reached a plateau of 314 IU/l over the next two days before it came gradually down.

The patient responded and returned to normal after 48 hours. Unfortunately, her manic symptoms surfaced again. In view of this, she was restarted on oral chlorpromazine 600 mg daily in divided doses, but she became stuporous again and her body temperature went up. Hence, all phenothiazines were immediately withdrawn and as she was unmanageable, ECT was started. After a course of ECT, her symptoms subsided. Later she was started on low doses of chlorpromazine.

Management of NMS has always been a problem and recently more specific treatment strategies are being tried. Among the effective drugs, dopamine agonists (amantadine, bromocriptine, carbidopa/levodopa) and myorelaxant (dantrolene) are widely used. However, the most controversial and difficult aspect of the management of NMS is rechallenge and aftercare of the patient. As psychosis is a hyperdopaminergic state, reversal of the NMS will ultimately lead to return of psychosis as evident in this patient. The rechallenge with antipsychotics has been shown to be dangerous as 70%–80% of the patients had recurrence of the NMS (Meltzer, 1973). The same thing happened to this patient thus it was decided to use ECT. However, ECT should not be used during the active NMS phase for it has been shown that there was evidence of brain oedema in autopsies of two patients who died from NMS (Stoudmoire and Lauther, 1989). However, the judicious use of ECT after the acute phase of NMS and when the psychotic picture is full blown again has more advantages than disadvantages. As seen in this patient, it was easier and faster to control the psychosis with ECT and then to rechallenge the patient with low dose neuroleptics.

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