Many patients take such medications without any awareness of potential side-effects. While this patient had taken a large quantity of Diocalm, the clinical presentation, accompanied by Lilliputian hallucinations, supports a diagnosis of acute anticholinergic toxicity from the Enterosan preparation. Some interaction between both compounds cannot be ruled out although psychotic states due to interaction between opiate-containing drugs and drugs with anticholinergic properties have not been documented (Committee on Safety of Medicines, personal communication). Similarly, there have been no previous reports of psychosis in association with antidiarrhoeal preparations (Committee on Safety of Medicines, personal communication). In addition to earlier accounts of psychosis following misuse of other proprietary medicines (Schaffer & Pauli, 1980; Gardner & Hall, 1982; Lambert, 1987) this case stresses the importance of eliciting details pertaining to use of over-the-counter medications (in addition to prescribed and illicit drugs) when evaluating the acutely psychotic patient.

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Neuroleptic-Induced Priapism, Hepatotoxicity and Subsequent Impotence in a Patient with Depressive Psychosis

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A 59-year-old man experienced priapism five days after taking neuroleptics and abnormal liver function after 28 days. These side-effects are possibly explained as hypersensitivity reactions to the drug.

Priapism is a rare but serious side-effect of neuroleptic medication. It involves persistent turgidity of the penile corpora cavernosa in the absence of sexual arousal. The corpus spongiosum and the glans are spared. Reports of drug-induced priapism in psychiatric patients are becoming increasingly frequent, but the underlying mechanisms remain largely unknown (Kogeorgos & de Alwis, 1986; Eikmeier, 1987). Much of what is known has been derived from laboratory animal studies (e.g. Abber

et al, 1987), but their clinical relevance is still unconfirmed. Meanwhile, case studies continue to provide insights into the nature of drug-induced priapism, particularly when it is associated with other rare side-effects.

Case report

A 59-year-old driver with no significant history of previous medical or psychiatric illness was admitted with an agitated psychotic depression. Investigations including full blood count, erythrocyte sedimentation rate, urea and electrolytes, liver-function tests, thyroid-function tests, chest radiography, serology and autoantibody screen were all normal. On the first day of admission, he was given chlorpromazine (200 mg) intramuscularly because of agitation. He received no further medication but five days later he developed a persistent erection. A diagnosis of priapism was made and he underwent an emergency decompression and a shunt operation.

Subsequent investigations included computerised tomography, and demonstrated a small area of low attenuation in the right caudate nucleus and mild cortical sulcal widening. Studies of cerebrospinal fluid were normal apart from a mildly elevated immunoglobulin level.

The patient remained mentally unwell. On the 28th day his liver functions, which were normal on admission, were noted to have become deranged. Gamma glutamyltranspeptidase was elevated to 150 units (normal range 11–51), alkaline phosphatase 723 (98–280), alanine aminotransferase 525 (0–40), and bilirubin 16 (0–17). These gradually improved and returned to normal within the next three weeks.

Subsequently, the patient received a course of electroconvulsive therapy (ECT), which was ineffective. He was then treated with lithium and his mental state gradually improved. His recovery from the psychosis was complicated by an awareness of loss of potency. His feelings of loss and uncertainty over his sexual role intermingled with underlying depressive feelings of guilt and self-doubt. These were particularly difficult to manage as he had no recollection of the events leading to the operation. Five months after admission, he was discharged to a day hospital from where he subsequently returned to work.

Discussion

This case offers two interesting observations, one on pathophysiology, the other addressing the psychological sequelae of neuroleptic-induced priapism.

Priapism and impairment of liver function are both fairly uncommon side-effects of neuroleptic drugs. Reports of priapism include those of Fishbain (1984), Eikmeier (1987) and Kogeorgos & de Alwis (1986). Impairment of liver function is estimated by Sherlock (1985) as occurring in 2% of patients who take neuroleptic drugs.

It is widely assumed that priapism involves relaxation of cavernous and arteriolar smooth muscles, leading to increased blood flow into the sinusoidal spaces, and compression of the emissary veins against the tunica albuginea with a consequent decrease in venous outflow (Lue *et al*, 1986). Brindley (1983) showed that alpha-adrenoceptor blockers injected into the human corpus cavernosum cause erection, and Abber *et al* (1987) argued from experiments on dogs that the priapism occasionally caused by chlorpromazine is due to its blocking of alpha-adrenoceptors. Case reports which show drug-induced priapism resolving with local or intravenous application of anticholinergic medication have led to the suggestion that parasympathetic dominance is also contributory (Osborne, 1974; Fishbain, 1984). These observations and hypotheses are linked by the possibility that parasympathetic dominance results from alpha-blockade within the sympathetic system.

Such models are relevant insofar as they approximate to clinical situations. Timing is of particular importance. Whereas in the experimental paradigm, priapism occurs within minutes of introduction of the inducing agent, clinical case reports cite periods of one day to nine months between the initiation of medication and the associated priapism (Fishbain, 1984; Kaisary & Smith, 1986*a*,*b*; Kogeorgos & de Alwis, 1986). This variability of latency argues against the alpha-blockade hypothesis. In our patient, priapism occurred five days after a single intramuscular injection of chlorpromazine, which again suggests that the alpha-blockade model is inadequate.

In addition to psychotropic medication, priapism is also associated with alterations in blood viscosity, blood dyscrasias and local pathology of the pelvis. Clearly the mechanisms involved in these situations are likely to be diverse. Apart from alpha-blockade, thrombosis, hypotension, mechanical blockage and extrapyramidal effects have been suggested as pathogenic factors (Eikmeier, 1987).

In neuroleptic-induced priapism, Korgeorgos & de Alwis (1986) suggested that a causative role for anticholinergic and hypotensive properties of neuroleptic drugs was unsubstantiated, and proposed that priapism was a complex and multifactorial disorder requiring the interaction of several factors.

A further promising way of exploring the underlying mechanisms is to study the association between the occurrence of priapism and the pattern of other side-effects of the offending agent. For instance, if it is postulated that priapism occurs because of vulnerability to the antiadrenergic effect of a neuroleptic, other antiadrenergic side-effects such as postural hypotension would be more likely in the same individual. Unfortunately, case reports seldom supply information on coexisting side-effects apart

from one account, where a concurrent acute dystonic reaction was reported (Fishbain, 1984). In our patient, there was no evidence of side-effects due to alpha-blockade; rather, priapism was followed by another rare side-effect of neuroleptic medication, hepatotoxicity.

It is generally accepted that chlorpromazine-induced hepatotoxicity is most likely to be detected two to four weeks after the introduction of medication, and involves a hypersensitivity reaction (Sherlock, 1985). This leads us to wonder whether in our patient, susceptibility to hypersensitivity reactions with chlorpromazine may have contributed to both priapism and hepatotoxicity.

It is acknowledged that in most drug reactions, the role of hypersensitivity is difficult to prove. However, hypersensitivity is strongly suggested if the following criteria are fulfilled (Terr, 1982):

(a) a reaction occurs in a small proportion of exposed individuals
(b) there is a latent period between exposure and reaction
(c) a reaction is elicited by relatively small doses
(d) there is association with other known hypersensitivity phenomena (e.g. eosinophilia).

Previous reports (Fishbain, 1984; Kaisary & Smith, 1986*a*,*b*; Kogeorgos & de Alwis, 1986) have shown that neuroleptic-induced priapism satisfies criteria (a), (b) and (c). The fourth criterion is addressed in the present case which reports an association between chlorpromazine-induced priapism and hepatotoxicity. This leads to a proposal that hypersensitivity may be one of the mechanisms involved in some cases of neuroleptic-induced priapism.

One difficulty with our hypothesis is a difference in timing of the priapism (day 5) and the detection of impaired liver function (day 28). It is noted that upon detection on day 28, the liver function improved continously until it returned to normal in the next three weeks. This suggests that impairment of liver function probably had already peaked before day 28. Furthermore, in contrast to a generalised hypersensitivity reaction, local hypersensitivity involves the interaction between antigen and host immune system (both humoral and cellular) at local tissue sites (Terr, 1982). As this depends on kinetic factors specific to the organs involved, exact concurrence in timing would not be expected in reactions at two separate sites.

One further interesting aspect of this case concerns the pattern of hepatotoxicity. Whereas the classic picture of chlorpromazine-induced hepatotoxicity involves cholestatic jaundice, subclinical impairment of liver function has been described and is probably not uncommon (Sherlock, 1985). Because of the absence of clinical jaundice, impairment of liver function in cases similar to this one could have remained undetected.

Whatever the underlying mechanisms, there are important physical and psychological consequences of neuroleptic-induced priapism. Priapism is an indication for urgent urological intervention. Even with treatment, only 8 out of 22 patients in one series retained potency (Kaisary & Smith, 1986*b*). A difficult problem can arise when a psychotic patient develops neuroleptic-induced priapism, receives treatment in the acute phase of his illness, and then gradually recovers from the psychosis to discover a loss of potency. In the existing literature, few authors have addressed this aspect of management. In one case report, Griffith & Zil (1984) described mild depressive symptoms in their patient and drew attention to the emotional reactions following loss of potency. In our patient, the awareness of loss of masculinity was incorporated into a complex system of cognition concerning guilt and worthlessness. This occurred as he emerged from a deeply psychotic state and began to re-establish contact with reality. Compounded by amnesia concerning the priapism and subsequent treatment, adjustment to the disability was very difficult and required repeated counselling. Staff awareness and experience of the situation was limited by the small number of cases previously encountered in the general psychiatric practice. Further work in this area is required so that knowledge could be shared and expertise pooled to help those involved to cope with an additional humiliating and traumatic disability on top of a psychiatric disturbance.

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Fluvoxamine/Pimozide Treatment of Concurrent Tourette's and Obsessive–Compulsive Disorder

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A 25-year-old man with a history of Tourette's syndrome presented for treatment of OCD symptoms. Fluvoxamine worsened tics, led to coprolalia, and did not help the OCD. The addition of pimozide dramatically reduced both OCD and Tourette's symptoms. Double-blind sequential discontinuation of fluvoxamine and pimozide confirmed that pimozide alone reduced only tics and the combination of fluvoxamine and pimozide was required for the improvement in OCD. Tics may reflect a subtype of OCD. Some OCD patients unresponsive to a 5-HT reuptake inhibitor alone may benefit from the addition of a dopamine antagonist.

The efficacy of drug treatment for obsessive–compulsive disorder (OCD) has now been established (Insel & Murphy, 1981). In double-blind trials, the potent serotonin (5-HT) reuptake inhibitors chlorimipramine (Insel & Murphy, 1981) and fluvoxamine (Goodman *et al*, 1989*a*) were significantly better than placebo in reducing the symptoms of OCD patients, whereas tricyclics with less effect on 5-HT reuptake inhibition such as nortriptyline (Thoren *et al*, 1980) and desipramine (Leonard *et al*, 1988) were largely ineffective. These findings lend support to the hypothesis that the 5-HT system plays a role in the pathophysiology of OCD. However, as many as 40–50% of OCD patients do not derive clinical benefit from 5-HT reuptake inhibitors (Insel & Murphy, 1981; Goodman *et al*, 1989*a*). This suggests that OCD may be heterogeneous, and has stimulated interest in identifying possible clinically and biologically distinct subtypes.

One possible subtype of OCD is represented by those patients with dual diagnoses of OCD and chronic multiple tics (CMT) or Tourette's syndrome (TS). Approximately 50% of TS patients have OCD symptoms (Pauls *et al*, 1986), and recent studies of first-degree relatives of TS probands suggest a possible genetic relationship between TS and OCD (Pauls & Leckman, 1986). TS is thought to involve dysfunction of brain dopamine systems, because of the effectiveness of neuroleptic drugs, such as haloperidol and pimozide, in reducing the severity of tics in most patients with TS (Shapiro, 1976). Monoamine reuptake inhibitors, such as imipramine (Sverd, 1988) and chlorimipramine (Caine *et al*, 1979), have been reported to exacerbate tics.

To our knowledge, there is only one published report of the response of OCD symptoms in patients with TS to treatment with potent 5-HT reuptake inhibitors (Riddle *et al*, 1988). Therefore, it was of