

TECHNIQUE FOR INJECTING LONG-ACTING NEUROLEPTICS

DEAR SIR,

Long-acting injectable neuroleptics are being used increasingly in the maintenance treatment of schizophrenia. Their advantages are evident since they minimize absorption variability and overcome the problem of non-compliance. However, little attention has been given to their potential complications at injection sites. Reports of subcutaneous lumps and induration (McCreadie, Kiernan, Venner *et al*, 1979; Amdisen and Thomsen, 1981; Lapierre, Chaudhry and Sipos, 1981), abscesses (Starmark, Forsman and Wahlström, 1980) and medication oozing from injection sites (Rifkin, Quitkin, Tieman and Klein, 1976) have all been documented. In our opinion these complications have been underestimated. They can, however, be significantly reduced and, in many cases, prevented by the conscientious application of a good injection technique. Catherine Finlay Kinnes (recommended (*Journal*, February 1981, 138, 178) the Z-track method for the injection of fluphenazine decanoate to prevent the oozing of medication. We have found that the following technique, which is a combination of the Z-track and air-bubble method, presents significant advantages for the injection of depot neuroleptics and also the long-acting non-depot neuroleptic, fluspirilene. Lumps and induration at injection sites, due to oozing of medication into subcutaneous tissue, are greatly reduced.

The procedure is as follows: (1) using a 2-inch needle, inject no more than 3 cc of medication per injection, into upper quadrant of buttock (to inject more than 3 cc use alternate buttocks and vary injection site); (2) after drawing up medication, draw a small air bubble of 0.1 cc into syringe and change needle for injection; (3) wipe injection site with alcohol swab and allow to dry before giving injection, as alcohol may infiltrate subcutaneous tissue and cause local irritation; (4) stretch the skin over the injection site to one side and hold firmly; (5) inject medication slowly, including air bubble, which forces last drop from needle into the muscle and prevents any medication from being deposited in subcutaneous tissue as needle is withdrawn; (6) wait about 10 seconds before withdrawing needle, then do so quickly and release skin; (7) do not massage injection site as this may force medication to ooze from muscle and infiltrate subcutaneous tissue; (8) precautions should also be taken with glass ampoules to avoid injection of glass particles (Turco and Davis, 1972). A more detailed description of the injection technique is available on request.

We have been using this method in our clinic (Special Follow-Up Clinic of the Allan Memorial

Institute) of 300 schizophrenic outpatients for over one year with extremely good results. Before the technique was introduced 23 of 25 patients receiving fluspirilene intramuscularly presented lumps at the injection sites, the great majority of which have now disappeared. We recommend that particular care be taken in the case of fluspirilene because, like most other preparations that are injected intramuscularly, this drug is administered in the form of an aqueous solution and is more likely to cause tissue damage than the depot neuroleptics which are in an oil base.

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References

- AMDISEN, A. & THOMSEN, N. J. (1981) Drug levels after withdrawal of long-term depot neuroleptics. *Lancet*, *i*, 1425.
- LAPIERRE, Y. D., CHAUDHRY, R. & SIPOS, V. (1981) A long-term efficacy and toxicity study of fluspirilene in chronic schizophrenia. *Current Therapeutic Research*, *30*, 793-802.
- MCCREADIE, R. G., KIERNAN, W. E. S., VENNER, R. M. & DENHOLM, R. B. (1979) Probable toxic necrosis after prolonged fluspirilene administration. *British Medical Journal*, *i*, 523-4.
- RIFKIN, A., QUITKIN, F., TIEMAN, D. & KLEIN, D. F. (1976) Fluphenazine decanoate. *Lancet*, *i*, 364.
- STARMARK, J.-E., FORSMAN, A. & WAHLSTRÖM, J. (1980) Abscesses following prolonged intramuscular administration of perphenazine enanthate. *Acta Psychiatrica Scandinavica*, *62*, 154-7.
- TURCO, S. & DAVIS, N. M. (1972) Glass particles in intravenous injections. *New England Journal of Medicine*, *287*, 1201-3.

SEASON OF BIRTH OF SCHIZOPHRENICS: CYCLIC TRENDS AND THEIR ANALYSIS

DEAR SIR,

A recent report by one of us on season of birth of schizophrenics (*Journal*, April 1982, 140, 410-15) employed the chi-square test to assess variation in quarterly birthrates. This statistical method has the virtue of simplicity and also, having been widely used in similar studies in the past, facilitates comparison between these and previously reported data. However, the chi-square test aims to detect any form of deviation from expected figures, regardless of pattern. In particular, where trends are presumed *cyclic*, this test is insensitive and may not be the most appropriate.

Cyclic trends are compatible with most if not all the hypotheses regarding season of birth of schizophrenics and are supported by evidence from previous studies