*Brit. J. Psychiat.* (1974), 125, 470–1

# Antisocial Behaviour, Barbiturate Addiction and Associated Electroencephalographic Changes

By LETITIA WEST and M. V. DRIVER

## Introduction

Since the implementation in April 1968 of the 1967 Dangerous Drugs Act, it has been illegal for any doctors except those working in drug centres to prescribe heroin. With the consequent introduction of the methadone maintenance clinics there has been a definite change in the overall pattern of addiction, largely governed by drug availability. It is difficult to estimate the extent of dependence on, or misuse of, barbiturates, but it is likely that the figure for the United Kingdom may be in the order of 150 to 250 per 100,000 (Bewley, 1970). In a recent study of sedative abuse, Mitcheson *et al.* (1970) found that 95 per cent of the heroin addicts interviewed had used sedatives.

Addicts who cannot get heroin or methadone may use more barbiturates and become drunkenly aggressive, with drug-induced fast activity in the electroencephalograph.

Study of the possible relationship between behaviour and barbiturates abuse is commonly very difficult, as in order to avoid having his maintenance methadone reduced the addict frequency denies taking barbiturates. Urine tests are only of limited value, the patient either refusing or being too stuporose to micturate, or false positives or negatives are obtained.

The present prospective study was made in order to clarify the value of the electroencephalograph in diagnosing barbiturate intoxication.

## Method

Social and family histories were taken from fifteen young addicts aged between 21 and 24 attending a maintenance methadone clinic. Each had a history of at least four years methadone addiction.

At the time the electroencephalographic recording was made each patient was asked whether he had ever taken barbiturates, and if so whether this was within one month of the recording. A urine sample was also taken and sent for assessment of its barbiturate content. The electroencephalographs were standard bipolar recordings using electrodes placed according to the usual Maudsley system. There was a recording time of approximately 30 minutes, followed by 3 minutes of hyperventilation and a period of photic stimulation. Following visual assessment the records were divided into three categories according to the persistence of fast, i.e. 15–30 c/s, activity of more than 20 microvolts amplitude. These were:

A: Present 75 per cent or more of the time;
B: Present 25–75 per cent of the time;
C: Present less than 25 per cent of the time.

## Results

Five of the fifteen addicts admitted to taking barbiturates at the time of the electroencephalograph being recorded (Group I). Of these, four showed barbiturates present in their urines and one did not. All five showed a significant change in behaviour, having records of aggression and police involvement. One died as a result of barbiturate poisoning at a later date. In each case there was either category A or B fast activity in the record.

Ten of the remaining addicts denied taking barbiturates, and in two of these their urines were positive for barbiturate content (Group II). The electroencephalograph records of five of the patients in this group showed category C of fast activity. Of these, three had no history of aggression or police involvement either before or after becoming addicted to drugs; while the



https://doi.org/10.1192/bjp.125.5.470 Published online by Cambridge University Press

remaining two addicts had a record of antisocial behaviour before and during addiction.

Of the further five patients in Group II, two were found to have barbiturate in their urines and Category A fast activity in the electroencephalograph. Both had become aggressive since addiction, and one later died of an overdose of barbiturates. The remaining three patients had negative urines, two had category B fast activity in the electroencephalograph and one had category A. All five had a history of antisocial behaviour and one (showing B activity) had on occasions clinical signs indicative of possible barbiturate misuse: abscesses, ataxia and slurred speech. The second addict showing B activity had barbiturates in his possession when at a later date he was searched by the police.

## Discussion

Since they are cheap and relatively easy to obtain, the abuse of barbiturates has become an increasing problem. A recent study among heroin addicts showed that 95 per cent were barbiturate abusers (Lynch, 1971). In addition to painful abscesses at the injection site and severe withdrawal fits, perhaps the most dangerous effect is the accompanying mood change in which the addict may become aggressive or overdose himself either accidentally or as a result of depression.

In an era of multiple drug abuse it is important to gauge the prevalence of barbiturate injection. The development of antisocial behaviour in these patients showed a definite relation to increased barbiturate usage.

It has been known for many years that barbiturates lead to an increase in the rhythmic fast components of cortical electrical activity (Brazier and Finesinger, 1945), and it was therefore not unexpected to find a greater amount of such activity in the EEG's of those patients who admitted taking barbiturates than in those who denied it and had negative urines. On the ten addicts who denied barbiturates, five showed either A or B activity. As previously indicated, three of these had significant clinical or social histories to warrant doubt of their denial.

## Summary

It is suggested that in view of the unreliability of urine testing the electroencephalograph can be of value in assessing those addicts who deny taking barbiturates and yet show clinical signs of possible barbiturate intoxication or who have a recent history of violence or behaviour change. If the electroencephalograph shows little fast activity the denial may perhaps be believed, but if fast activity is prominent one should be very sceptical in accepting the addict's denial of barbiturate usage.

### Acknowledgements

We would like to thank Dr. Bewley at the Lambeth Methadone Maintenance Clinic for his encouragement and constructive criticism of this paper, and the electroencephalographic staff at St. Thomas' Hospital for their kind collaboration.

### References

Bewley, T. D. (1970) An introduction to drug dependence. *British Journal of Hospital Medicine*, **160**, 150–61.

Brazier, M. A. B. & Finesinger, J. E. (1945) Action of barbiturates on the cerebral cortex. Electroencephalographic studies. *Archives of Neurology and Psychistry (Chicago)*, **53**, 51.

Lynch, T. (1971) *Journal of Irish Medical Association* 64/415, 357–8.

Mitcheson, M., Davidson, J., Hawks, D. V., Hitchen, I. & Malone, S. (1970) *Lancet*, *i*, 606.

Letitia R. West, M.B., Ch.B., M.R.C.Psych., *Senior Registrar, St. Thomas' Hospital, London, S.E.1 (now Locum, Consultant Psychiatrist, St. James' Hospital, Portsmouth, PO4 8LD)*

M. V. Driver, M.B., B.S., Ph.D., M.R.C.Psych., *Consultant Neurophysiologist, Maudsley Hospital, London, SE5 8AZ*

*(Received 25 January 1974)*

https://doi.org/10.1192/bjp.125.5.470 Published online by Cambridge University Press