

**PATIENTS RECEIVING BARBITURATES  
IN AN URBAN GENERAL PRACTICE**

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**I**N THE nineteenth century paraldehyde and chloral hydrate were widely used for their hypnotic and sedative effects. The observation that urea derivatives were useful in this respect led to the synthesis of barbituric acid and the eventual clinical use of barbitone in 1903. Since then the popularity of barbiturates has continued, notwithstanding fashions in prescribing. As early as one year after their introduction into clinical practice, an account of chronic barbiturate abuse was recorded (Laudenheimer 1904).

In 1946, a rough estimate of the consumption of barbiturates in Great Britain suggested that enough was produced for "one sleeping tablet per head per day for a million of the population" (Locket 1952). This calculation was based on the estimate of 71,500 lb. of barbituric acid and salts produced. Since then, the interdepartmental committee on drug addiction (1961) indicated that the estimated total quantity of barbiturate prescribed by general practitioners had increased from 90,000 to 162,000 lb. between 1951 and 1959. This occurred in spite of the introduction of other sedatives and 'tranquillizers' during this period.

In 1962 the number of prescriptions for barbiturates in England and Wales totalled 15,760,000. They accounted for more prescriptions than any other group apart from expectorants and cough suppressants (Ministry of Health 1964). It is evident that many doctors and patients must consider barbiturates to be valuable drugs. In this study we looked at the indications for which they were prescribed by one group of family doctors. At the same time an attempt was

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made to determine the extent to which patients are increasing their consumption of these drugs and whether addiction and habituation to them are serious problems in a general practice.

Addiction is defined as a state of periodic or chronic intoxication produced by the repeated consumption of a drug. Its characteristics include an overpowering desire or need to continue taking the drug, a tendency often to increase the dose, psychological and physical dependence on the effects of the drug and the appearance of a characteristic abstinence syndrome in a subject from whom the drug is withdrawn. It is an effect detrimental to the individual and society. Drug habituation is similar but the drug is taken for the sense of improved well-being it engenders; there is no physical dependence and therefore no abstinence syndrome (Ministry of Health 1961).

It is not certain in which category prolonged use of barbiturates should be placed. Isbell *et al.* (1950) pointed out that chronic barbiturate intoxication produced impairment of mental ability, increased emotional instability and neurological symptoms. The patients became tolerant and, on abrupt withdrawal, a definite abstinence syndrome developed consisting of weakness, tremor, great anxiety, nausea, sometimes convulsions of a *grand mal* type and occasionally development of a psychosis. They concluded: "Barbiturates are addiction-forming drugs and in some respects addiction to barbiturate is more dangerous and undesirable than is addiction to morphine".

These authors, therefore, consider that barbiturates are drugs of addiction. Nevertheless, definite evidence of widespread addiction is not available. On the whole it would seem that a sharp distinction between addiction and habituation is artificial and that there is a continuum, any particular patient being allocated along the continuum from occasional indulgence to fully developed addiction.

There is no doubt, however, that increasing numbers of people are taking barbiturates and that they are potentially addictive drugs. The present study is an attempt to estimate the number of patients in an urban practice who are taking barbiturates, to look at the degree of addiction to them and to examine, if possible, the causes of this.

### Method

The practice is in a part of north-west London where all social classes and occupations are represented (Horder and Horder 1954). No practitioner in the group prescribes barbiturates for more than a month at a time. Hence during an eight-week period in the autumn of 1963, all the patients requiring barbiturates in any quantity must have attended the surgery. Any patient requiring a prescription for

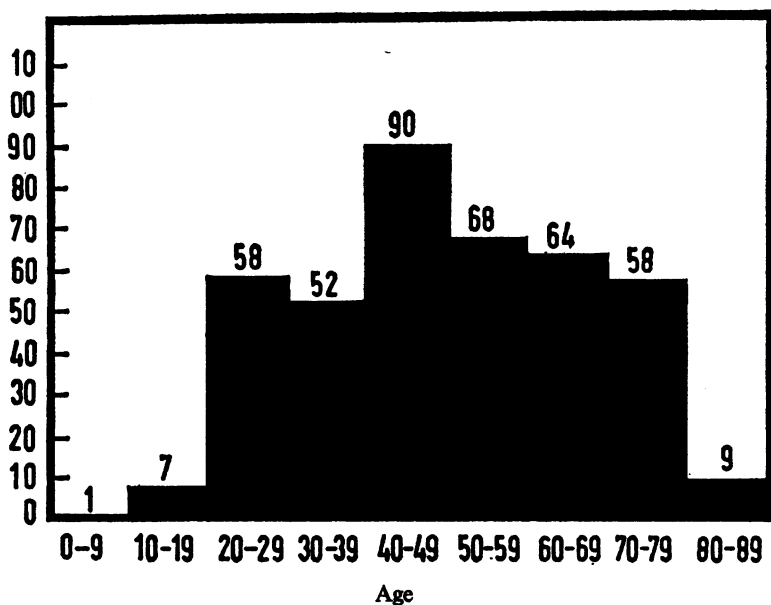


Figure 1.  
Age distribution of patients taking barbiturates.

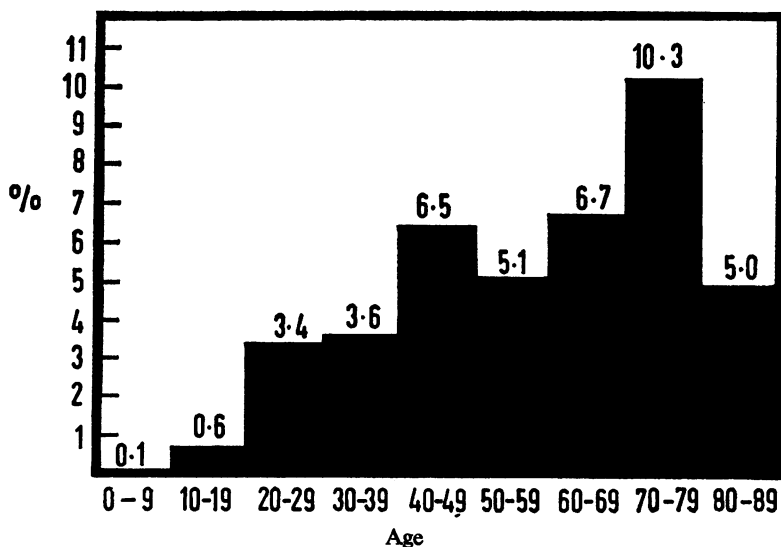


Figure 2.  
Prevalence of patients taking barbiturates expressed as a percentage  
of those at risk.

a drug containing barbiturate in any form had a questionnaire completed by the practitioner at the time and a label applied to the medical records to prevent duplication. Details of age, sex, marital state were noted, as was information covering the amount, intermittency and duration of barbiturate-taking. Inquiries were made also on side and withdrawal effects and a note made from the medical records of any indication of increased dose. Symptoms were described and the original reason for, and source of, the prescription noted.

An attempt was made to allocate the patients to diagnostic groups. Kessel and Shepherd (1962) allocated patients in general practice to one of four groups. Patients in group one had purely physical symptoms and a diagnostic label was added. Those in group two were considered to elaborate or protract a recognized physical illness. A diagnosis was added to this group. In group three the patient had somatic symptoms which the practitioner did not attribute to organic pathology and in group four the patient had purely psychological symptoms. If a patient in the present study fell within groups three or four of Kessel and Shepherd's classification, he was then allocated to a diagnostic scheme published by the College of General Practitioners (1963). The first division was into a psychotic, psychoneurotic or other psychogenic illness. Then allocation was made to a descriptive label. Space was left for queries or additional information. The doctor then signed and dated the questionnaire which was then taken from the surgery. Any information omitted originally was filled in later by reference to the notes. When more than one practitioner was involved, a consultation between them occurred before submitting the completed form.

**Results**

1. During the eight-week period 407 patients received prescriptions for barbiturates, 84 male and 323 female.

2. *Age:* The age distribution and numbers taking barbiturates are shown in figures 1 and 2.

3. <i>Marital State:</i>		<i>Patients</i>	<i>Local Borough</i>
Married .. ..	54	per cent	45 per cent
Single .. ..	24	"	46 "
Widowed .. ..	19	"	7 "
Divorced .. ..	4	"	1 "

4. <i>Duration of barbiturate-taking</i>							
First prescription .. ..	..	..	..	..	..	..	93
Days .. ..	..	..	..	..	..	..	12
Weeks .. ..	..	..	..	..	..	..	16
Months .. ..	..	..	..	..	..	..	49
Years .. ..	..	..	..	..	..	..	237
5. <i>Evidence of increasing dose</i> .. ..	..	..	..	..	..	..	47
6. <i>Day sedation</i> .. ..	..	..	..	..	..	..	182

7. <i>Barbiturates in combination</i>	
Barbiturate and amphetamine .. .. .	58
As mixture for asthma, gastro-intestinal disorders, epilepsy	31
8. <i>Interrupted dosage</i>	
Periodic prescriptions for barbiturates .. .. .	107
9. <i>Origin of prescription</i>	
Family doctor .. .. .	368
Hospitals .. .. .	36
Friends or family .. .. .	3
10. <i>Side-effects</i>	
Morning drowsiness or hangover .. .. .	11
11. <i>Withdrawal effects</i>	
'Anxious feelings', 'weakness' .. .. .	19
12. <i>Diagnostic groups</i>	
Physical .. .. .	67
Elaboration or protraction of recognized physical illness	33
Somatic symptoms with no organic pathology .. .. .	104
Entirely psychological .. .. .	208
Allocated to two groups or more .. .. .	30
13. <i>'Anxiety'</i>	
Using the psychiatric classification above, anxiety was mentioned diagnostically in 265 of the 407.	
Anxiety with somatic symptoms .. .. .	114
Anxiety with depression .. .. .	97
Anxiety with no somatic symptoms .. .. .	79
Anxiety with phobias .. .. .	9
Allocated to two groups .. .. .	34
14. <i>Other psychiatric diagnoses</i>	
'Hysterical reaction' .. .. .	12
Manic-depressive psychosis .. .. .	8
Senile psychosis .. .. .	6
'Psychopathic' .. .. .	3
Organic psychosis .. .. .	1
Psychoneurotic or obsessional disorder .. .. .	4
15. <i>'Insomnia'</i>	
Sole classification .. .. .	25

### Discussion

The group practice studied has a list of approximately 10,000, drawn from all social groups. During the eight-week period studied in autumn 1963, 407 patients were prescribed barbiturates, which was approximately four per cent of the practice population. Barbiturates were not prescribed for longer than one month without a repeat prescription, so that it might be expected that most patients receiving barbiturates at the time were included. If anything, however, the result is an underestimate; a few will have been missed, either because they received barbiturates from hospital or consultants unknown to the family doctor or because they shared supplies among relatives and acquaintances. The figures, nevertheless, may indicate

that approximately two million people in Great Britain are receiving barbiturates at any one time and that 80 per cent of the total are female. This female preponderance is in excess of the female:male consultation ratio 3:2 (Horder and Horder 1954) and more nearly approximates to the preponderance of females in groups of patients with self-poisoning (Kessel, McCulloch and Simpson 1963, Adams 1965). Nearly all ages are represented, with a peak in the decade 40-49. The figures, when corrected for the numbers at risk in each group, show the increase in barbiturate consumption with age (figure 2). The differences in marital state of the patients when compared with the population of the local borough may be explicable in terms of the increased numbers in the older age groups. One of the most striking findings is that 58 per cent of patients receiving barbiturates had been taking them for more than a year. Thus, over two per cent of the practice population were under the influence of barbiturates for a considerable duration. It has been shown that as long as 14 hours after the ingestion of only 100 mg. of barbiturate, alteration in mental functioning can be detected (Goodnow *et al.* 1951). Reaction time, tests of memory and other measurable psychological parameters are changed for up to eight hours after this quantity of barbiturate. It might be expected that the effect on more complex judgmental or motor activities would last even longer. It is a matter of importance that two per cent of the population are almost continuously in a state of altered mental function for many years.

Evidence of increasing dosage was detected in only 47 patients. Due to the nature of the investigation, this must be considered a conservative estimate. Only a proportion of patients will admit, and hence demand, a larger dose; many will present themselves more frequently for prescriptions in order to increase the dose themselves. In a proportion the doctor will be aware of this but many may escape notice. On the whole this group, with their increasing demand for barbiturates, had no striking characteristics. The same sex ratio was observed and no significant difference was noted in the marital state and they were not, surprisingly, characterized by a preponderance of psychiatric diagnoses; significantly less were receiving barbiturates for day-time sedation. The one outstanding characteristic was that most had received barbiturates for a period of years and had chronic psychiatric or physical complaints. At the end of the investigation the family doctors were given the completed questionnaires on this group for further comment. The replies indicated that the patients in this group who were increasing their demands for barbiturates were frequent attenders at the surgery and complained of symptoms which defied accepted treatment and that the family doctor felt impotent in dealing with them.

Of the barbiturates in mixtures, 31 prescriptions were for asthma, gastro-intestinal disorders and epilepsy. There was no evidence of increasing dosage in this group. To our surprise, a mixture of barbiturate and amphetamine, prescribed to 58 patients, did not result in a significantly greater proportion of patients demanding an increasing dose compared to those on barbiturate alone. It may be that the survey coincided in time with the publicity regarding this type of medication; it may also be that the doctors in this practice made a point of using this combination only for predictably short-term distress.

The prevalence of side and withdrawal effects were markedly low and none seemingly serious. However, the survey was not constructed to detect subtle alteration in function as a result of the sedatives. It may be that with the increasing use of prolonged medication with drugs acting on the central nervous system, a new approach to toxicity must be considered. These patients are continuing work and perhaps driving cars or doing other skilled tasks. Any slight impairment, barely detectable on testing and certainly ignored in routine clinical questioning, may be of importance to them.

On the whole we found it relatively easy to allocate patients to the groups described by Kessel and Shepherd. Of the 407 patients receiving barbiturates, most, but by no means all, had some psychological disturbance. It is of interest, however, that the incidence of increasing dosage was not higher in the psychiatric group. Physical disease, if chronic, may also be accompanied by a gradually increasing consumption of barbiturates. If on Kessel and Shepherd groupings, a patient was allocated to group 3 or 4, then an attempt was made to identify the main psychiatric category to which he belonged. We used the classification devised by the College of General Practitioners, although there are at first sight many criticisms of it. Two hundred and fifty-six of the 407 patients were allocated to the four diagnostic 'anxiety' groups. It was difficult to determine if this meant more than that the patients complained of anxious feelings. Certainly the division into those with 'anxiety with somatic symptoms' and those with 'anxiety with no somatic symptoms' was unrealistic. On the whole this diagnostic classification added little in the way of information or clarity. One group of patients who seemed to defy easy diagnostic allocation were those whose only complaint was insomnia. Twenty-five were given this as a label and 18 of them were aged over 60. In this group there were no other physical or psychiatric symptoms. It is, of course, difficult to know if the insomnia would have continued had not reliance been placed on barbiturates in the first place.

### Summary

This study confirms that a large number of patients, particularly women, were receiving barbiturates and that the majority of them did so for years on end. Most of them continued to receive the drugs without obvious addiction. Chronic illness, whether predominantly psychological or predominantly physical, was equally likely to result in increasing dependence on barbiturates. It was when this chronic illness was combined with a failure to respond to specific treatment given by the family doctor that drug dependence was particularly likely to occur. Severe side-effects were seldom found but the possible dangers of prolonged slight impairment of mental function in two per cent of the population are stressed.

### REFERENCES

- Adams, B. G. (1965). Unpublished observations.
- Goodnow, R. E., Beecher, H. K., Brazier, M. A. B., Mosteller, F., and Taiguri, R. (1951). *J. Pharmacol.*, **102**, 55.
- Holder, E. J., and Holder, J. P. (1954). *Practitioner*, **173**, 177.
- Isbell, H., Altschul, S., Kornetsky, C. H., Eisenman, A. J., Flanary, H. G., and Fraser, H. F. (1950). *Arch. Neurol. Psychiat.*, **64**, 1.
- Kessel, N., and Shepherd, M. (1962). *J. Ment. Sci.*, **108**, 159.
- Kessel, N., McCulloch, W., and Simpson, E. (1963). *Brit. med. J.*, **2**, 985.
- Laudenheimer, R. Quoted in Wulff, M. H. (1959). *Electroenceph. clin. Neurophysiol. Suppl.* **14**.
- Locket, J. (1952). *Med. Ill. (Lond.)*, **6**, 616.
- Ministry of Health & Scotland (1961). Interdepartmental Committee on Drug Addiction. Her Majesty's Stationery Office. London.
- Ministry of Health (1964). Recent N.H.S. prescribing trends. (*Rep. Pub. Health* 110). Her Majesty's Stationery Office. London.
- Research Committee of the College of General Practitioners (1963). *J. Coll. gen. Practit.*, **6**, 209.