Drug misuse in adolescence

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SUMMARY

Problems of adolescent drug misuse are increasingly common. A retrospective study was undertaken to compare the data from adolescents who attended the accident and emergency department of an urban children's hospital in 1981 and 1985. Epidemiological characteristics of both groups are detailed. The results are discussed and the feasibility of units specialising in the management of adolescents who have misused drugs is considered.

INTRODUCTION

Drug misuse or 'the non-medicinal use of drugs' by adolescents affects both the community and hospital resources. In Merseyside, as in other areas of the country, there is a concern that drug abuse in adolescence is increasing. Therefore, there is a need to assess the magnitude of the problem, to see what the needs of the children are and to look at the services available. Adolescent patients who presented to the accident and emergency department of an urban children's hospital following drug misuse were studied in 1981 and 1985. The earlier research followed a report from a small working party appointed by the paediatric medical executive committee in 1980, which looked at drug-related problems in adolescents who attended the two Liverpool children's hospitals. That group found that information was sparse and so decided to monitor the situation more closely. The later study is used for comparison.

PATIENTS AND METHODS

The authors studied all adolescents aged 10–15 years who attended the Accident and

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Emergency Department of Alder Hey Children's Hospital, Liverpool, England, in the years 1981 and 1985 after ingesting or inhaling a poison, excluding carbon monoxide.

The data were examined retrospectively for all adolescents from Accident and Emergency Department notes, case sheets and hospital correspondence. Epidemiological details on the month and length of admissions, the sex and age of the patients, the type of drug used and details of follow-up were analysed.

RESULTS

In 1981, there were 36 900 new attendances at the Accident and Emergency Department and, of these, 114 patients between the ages of 10 and 15 were brought having ingested or inhaled a poison. Eleven incidents were true accidents; two patients had been given a poison by another person, the recipient not knowing the nature of the substance ingested; and six patients claimed that they had taken drugs to relieve symptoms and that the misuse or 'overdose' was accidental. The remaining 95 adolescents in 1981 knew that they were misusing drugs. The figures for 1985 show that of 44 285 new attendances, 97 patients were seen following an ingestion or inhalation of drugs. Four incidents were accidental and five patients were given the drug by another person. The remaining 88 patients were included in the study as intentional self poisonings. No patients at or above the age of 16 years were included because of the low number seen; many of this age group are assessed in the Liverpool hospitals for adults.

Characteristics of the two study groups are tabulated. Details of attendances and admission are given in Tables 1 and 2. In 1981, 26 males and 69 females were in the study (M:F;1:2.7), 80.1% of the males seen were admitted. In 1985, the proportion of males increased, i.e. 41 males and 47 females attended the department (M:F;1:1.1), but the proportion of males admitted actually decreased to 63.4%. The latter reflects the increase in the misuse of solvents and 'magic mushrooms' by male adolescents. These substances often not necessitating an admission because of their short-lived side effects.

Table 1 Attendances and admissions for 1981

Age (years)	Attendances		Admissions		(No. of males)
	Number	Total (%)	Number	Total (%)	
10	1	1.1	0	0	(0)
11	12	12.6	7	7.4	(3)
12	6	6.3	5	5.3	(3)
13	18	19.0	13	13.7	(4)
14	27	28.4	25	26.3	(8)
15	<u>31</u>	<u>32.6</u>	<u>28</u>	<u>29.5</u>	<u>(3)</u>
	95	100	78	82.2	(21)

Table 2 Attendances and admissions for 1985

Age (years)	Attendances		Admissions		(No. of males)
	Number	Total (%)	Number	Total (%)	
10	3	3.4	1	1.1	(1)
11	4	4.5	2	2.3	(2)
12	6	6.8	4	4.5	(3)
13	19	21.6	17	19.3	(7)
14	39	44.3	29	33.0	(11)
15	17	19.3	15	17.0	(2)
	88	100	68	77.2	(26)

In 1981, 82.2% of adolescents studied were admitted to the medical wards. The figure for 1985 had fallen to 77.2%. The peak age for admission was 15 years in 1981 but this had shifted to 14 years in the later study. The admissions showed an increase in summer months in both years.

In both years, the majority of admissions were 'short stay' (Table 3), over half the patients admitted being discharged in less than 48 h. However, the outcome of admission varied between the 2 years (Table 4). Approximately one third of patients were discharged without further follow-up in both groups. In 1981, the majority of patients were discharged to hospital clinic follow-up (47.7%), whereas 4 years later the emphasis had moved towards community services follow-up, 14.8% only being seen in a clinic. There were no deaths in 1981, but one patient died following admission in 1985.

A multitude of drugs were taken in both years (Tables 5 & 6). In 1981, benzodiazepines were most common, accounting for 32.7% ingestions. Alcohol was the second most common poison (19%), with paracetamol, antimicrobials and salicylates following closely behind. In 1981, 9.5% patients admitted to ingesting narcotics but none of these was heroin. In 1985, alcohol had become the drug of choice for deliberate misuse (21.6%). Paracetamol remained an easily available drug of ingestion but benzodiazepines had fallen to third place (17%). Misuse of narcotics decreased slightly to 8% but in two incidents heroin was involved. The definition of 'narcotic' being any drug

Table 3 Comparison of duration of admissions for 1981 and 1985

Duration	1981		1985	
	Number	Total (%)	Number	Total (%)
< 48 h	50	52.7	47	53.4
2-7 days	28	29.5	17	19.3
> 7 days	0	0	3	3.4
Deceased	0	0	1	1.1
	78	82.2	68	77.2

Table 4 Comparison of outcome of admissions for 1981 and 1985

Duration	1981		1985	
	Number	Total (%)	Number	Total (%)
Discharged with no follow-up	31	32.7	29	33
Discharged to hospital clinic follow-up	45	47.4	13	14.8
Discharged to community services follow-up	2	2.1	25	28.3
Deceased	$\frac{0}{78}$	$\frac{0}{82.2}$	$\frac{1}{68}$	$\frac{1.1}{77.2}$

derived from opium or opium-like compounds, with potent analgesic effects associated with significant alteration of mood and behaviour, and with the potential for dependence and tolerance following repeated administration. Included in the group were codeine phosphate, dihydrocodeine, pentazocine, dextropropoxyphene, buprenorphine and dextromoramide. One patient died having ingested flurazepam, heroin and cannabis. Solvent abuse increased from three cases (3.2%) in 1981 to eight cases (9.1%) in 1985. Ingestion of 'magic mushrooms' showed a less dramatic increase from three cases in 1981 (3.2%) to six cases (6.8%) in 1985.

Ingestions of tricyclic antidepressants and phenothiazines remained in the 'top ten' in both groups. Ingestion of iron fell from 5.3% in 1981 to 3.4% in 1985. In both years, the majority of patients took a single drug (72.6% in 1981 and 67% in 1985). The remainder took more than one poison either as a compound or multiple preparations. In 1985, one patient took 11 different preparations in a single episode.

Table 5 'Top Ten' drugs taken 1981

Drug	Number	Total (%)
Benzodiazepines	31	32.7
Alcohol	18	19.0
Paracetamol	17	17.9
Antimicrobials	11	11.6
Salicylates	11	11.6
Phenothiazines	8	8.4
Tricyclic antidepressants	7	7.4
Narcotics	9	9.5
Caffeine with quinine	6	6.3
Iron	5	5.3

Table 6 'Top ten' drugs taken 1985

Drug	Number	Total (%)
Alcohol	19	21.6
Paracetamol	16	18.2
Benzodiazepines	15	17.0
Antimicrobials	8	9.1
Salicylates	8	9.1
Solvents	8	9.1
Narcotics	7	8.0
Psilocyloin mushrooms	6	6.8
Tricyclic antidepressants	5	5.7
Phenothiazines	4	4.5

The reasons for taking drugs were very difficult to assess, particularly with a retrospective eye. Adolescents ingested drugs as an immediate response to many different types of problems (Table 7).

Table 7 Examples of reasons for taking drugs

Physiological effects
Experimentation
Suicide attempt
Combination of problems including:
(1) Family
(2) School
(3) Friends
(4) Culture
Imitation
Unidentified

DISCUSSION

The characteristics of adolescents who attended the Accident and Emergency Department of Alder Hey Children's Hospital in the years 1981 and 1985 with a presenting complaint of drug misuse can give insight into the nature of adolescent drug misuse in Merseyside. However, they are unlikely to reflect the total picture as only 'ill' and/or disturbed patients would be brought. People working in the community have a wider picture.

At present, all adolescents who need admission following drug misuse go to the open medical wards which take all age groups. This may not always seem appropriate for the adolescents or for the other patients. The aggressive patient, in particular, can cause nursing difficulties. Violent episodes usually followed ingestion of alcohol or hallucinogenic drugs. When admission to a paediatric ward is not appropriate the patient is

transferred from the Accident and Emergency Department to a nearby hospital for adults.

Patients who present with deliberate self harm are admitted and later receive a psychosocial assessment by a social worker who records the findings for consideration by a physician. As in adults, suicidal intent is often difficult to assess; important factors include a depressed mood, an expressed wish to die, regret at having failed, and a previous or planned attempt. Any adolescent showing evidence of depression or other psychological disturbance is referred for a psychiatric opinion; a visit to the ward would usually be arranged by a psychiatrist or psychiatric social worker that same day. Any appropriate psychiatric follow-up is arranged at this stage. Close cooperation between the paediatric medical wards and the psychiatry department is invaluable.

The findings suggest that a short stay of less than 48 h is appropriate for over half the cases requiring admission. The trend for further follow-up is now favouring community services rather than hospital clinics. The follow-up in the community is varied, involving medical or psychiatric social workers, community nurses, educational psychologists, teachers or welfare officers. Advice from the drug dependency unit is also valuable. Many offers of further follow-up are declined by the parents but they are assured that they can get in touch if further problems develop.

In the future, the setting up of an adolescent psychiatry unit would have advantages. Ideally, this unit would be managed jointly by a child psychiatrist and a paediatrician in close proximity to the department of psychological medicine. Each patient could then be admitted for a short stay involving multidisciplinary assessment. If longer admission was required, the patient could be transferred to a general or psychiatric ward, whichever was the most appropriate. The unit could also offer out-patient facilities. An important consideration is also the prevention of subsequent, possibly fatal, suicide attempts in adolescents after their first attempt.

Although awaiting further evaluation, the practice of giving young people who have already taken an overdose a card enabling them to readmit themselves to the paediatric ward without question, may be an effective way of preventing a further attempt (Black, 1986).

Some patients were discharged home directly from the Accident and Emergency Department, without being admitted (17.8% in 1981 and 22.8% in 1985). This happened only if a patient faced no physical risk from the result of ingestion. If appropriate, a psychiatric consultation was arranged for a later date, but most cases were followed-up either by a health visitor or by a social worker.

Early predictors of adolescent substance abuse have been described in a number of studies (Kaplan *et al.*, 1984; Kellam *et al.*, 1982; Yamaguchi & Kandel, 1984). However, further research is needed to discover more about how and/or when single or sporadic abuse can become long term. It is apparent that drug-taking behaviour is a complex interaction of many factors including personality characteristics, and peer and parental relationships (Segal, 1983).

The behaviour of taking pills or attempting suicide may be imitated (Black, 1986). In our study, two brothers aged 10 and 13 years were admitted together in 1985. The older brother took three different preparations in a suicide attempt because of separation by his parents. He had attempted suicide previously. The younger brother took a combination of two drugs to copy the elder brother's behaviour. It is not uncommon for

young people who kill themselves to have high levels of family disruption, or to have experienced physical or sexual abuse (Anderson, 1981; Deykin *et al.*, 1985).

Alcohol was misused by 18 adolescents in 1981 and by 19 in 1985 despite the increased publicity in the last few years on the dangers of excessive drinking (Joint Working Party, 1984).

The adolescents included in the study are unlikely to reflect the total picture of adolescent alcohol abuse in the community (Robson, 1984). In 1981, there were 448 convictions for offences connected with drunkenness in persons under the age of 18 on Merseyside (Chief Constable, 1981). Recent studies in adults have shown increasing evidence that alcohol is an important contributory factor in a large proportion of acute admissions to hospital (Lockhart *et al.*, 1986). Clinical suspicion should, therefore, remain paramount in both adult (Wallace, 1986) and, increasingly, in adolescent age groups (Beattie *et al.*, 1986).

The range of drugs misused by adolescents is enormously varied. It is interesting that there were two cases of heroin abuse in 1985, whereas there were no cases seen in 1981. This partly reflects the rise in heroin abuse in Merseyside, but also emphasises the dangers of such practice since the only death seen in the 2 years studied was associated with heroin use. This 14-year-old boy had a cardiorespiratory arrest at home. Resuscitation was started on the way to hospital and continued in the Accident and Emergency Department. This included the administration of naloxone. A cardiac output was obtained after 20 min, but brain death had occurred. He had a further cardiac arrest 4 days later whilst being ventilated. Initial blood analysis showed heroin and cannabis but later results revealed flurazepam in the fatal concentration range. The importance of each drug in the mode of death was uncertain because no accurate history was available of his activities in the 12 h prior to admission. His death emphasises the danger of such a combination of drugs.

The study demonstrated an increase in the misuse of solvents and 'magic mushrooms' by adolescents. Glue sniffing was first reported in the United States in the 1950s and, since then, has become quite common on both sides of the Atlantic. Our results demonstrate, as in previous studies, that the practice is most commonly a group activity, mainly involving boys 13–15 years. The majority are casual users, from curiosity, peer group pressure or boredom. It has been reported from all parts of the country, but particularly in urban disadvantaged areas (Black, 1982; O'Connor, 1979; Watson, 1982). Similarly, abuse of hallucinogenic mushrooms is not a new phenomenon. The Indians of Mexico used hallucinogenic mushrooms for magico-religious purposes for many centuries (Peden *et al.*, 1981). It is again popular in male adolescents, as a group activity and is commonly seen in the autumn (Cooles, 1980; Hyde *et al.*, 1978). It is reassuring to see that the popularity of benzodiazepines fell dramatically in 1985 compared to 1981, hopefully due to the more limited prescription of these drugs for adults.

In conclusion, the results of this survey give some indication of the problems associated with drug misuse in adolescence. Doctors and nurses working in accident and emergency departments need a high degree of suspicion and appropriate kits for screening for drug abuse should be available. Information on community services for adolescents needs to be updated and readily available. Health education campaigns should be aimed at the young who can be warned about the dangers of experimentation

with drugs. This has been attempted by 'Drug Alert' on Radio 1 (BBC, 1985) and more recently by the 'Just Say No' Campaign. Education of parents and teachers is necessary to help them to understand a subject they often know less about than their children. A family self-help group in each district would be invaluable.

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REFERENCES

- Anderson L. S. (1981) Notes on the linkage between the sexually abused child and the suicidal adolescent. *Journal of Adolescence* 4, 157-62.
- Beattie J. O., Hull D. & Cockburn F. (1986) Children intoxicated by alcohol in Nottingham and Glasgow 1973-84. *British Medical Journal* 292, 519-21.
- British Broadcasting Corporation, Broadcasting Support Services, Institute for the study of Drug Dependence (1985) *Drug Alert Booklets: The Basic Facts and How to Get Help*.
- Black D. (1982) Glue sniffing. *Archives of Disease in Childhood* 57, 893-4.
- Black D. (1982) Misuse of solvents. *Health Trends* 14, 27-8.
- Black D. (1986) Adolescent suicide: preventive considerations. *British Medical Journal* 292, 1620-1.
- Chief Constable of Merseyside (1981) *Report to the Merseyside Police Committee*, 110.
- Cooler P. (1980) Abuse of the mushroom *panaeolus foenisecii*. *British Medical Journal* 1, 446-7.
- Deykin E. Y., Alpert J. J. & McNamara J. J. (1985) A pilot study on the effect of exposure to child abuse or neglect on adolescent suicidal behaviour. *American Journal of Psychiatry* 142, 1299-303.
- Hyde C., Glancy G., Omerod P., Hall D. & Taylor G. S. (1978) Abuse of indigenous psilocybin mushrooms: a new fashion and some psychiatric complications. *British Journal of Psychiatry* 132, 602-4.
- Joint Working Party NPA/SOGAT/NGA (1984) *Dying for a Drink*, 109.
- Kaplan H. B., Martin S. S. & Robbins C. (1984) Pathways to adolescent drug use: self-derogation, peer influence, weakening of social controls and early substance use. *Journal of Health and Social Behaviour* 25, 270-89.
- Kellam S. G., Stevenson D. L. & Rubin B. R. (1982) How specific are the early predictors of teenage drug use? In *Problems of Drug Dependency*, Harris L. S. (ed.), pp. 329-34. Forty-Fourth Scientific Annual Meeting NIDA Research Monograph.
- Lockhart S. P., Carter Y. H., Straffen A. M., Pang K. K., McLoughlin J. & Baron J. H. (1986) Detecting alcohol consumption as a cause of emergency general medical admissions. *Journal of the Royal Society of Medicine* 79, 132-6.
- O'Connor D. J. (1979) A profile of solvent abuse in school children. *Journal of Child Psychology and Psychiatry* 20, 1-4.
- Peden N. R., Bissett A. F., Macaulay K. E. C., Crooks J. & Pelosi A. J. (1981) Clinical toxicology of 'magic mushroom' ingestion. *Postgraduate Medical Journal* 57, 543-5.
- Robson W. J. (1984) Alcohol abuse in adolescence. *Alcohol and Alcoholism* 19, 177-9.
- Segal B. (1983) Drug and youth: a review of the problem. *The International Journal of the Addictions* 18, 429-33.
- Wallace P. (1986) Looking for patients at risk because of their drinking. *Journal of the Royal Society of Medicine* 79, 129-30.
- Watson J. (1982) Glue sniffing: too few answers to a sticky problem. *Psychiatry in Practice* 29-33.
- Yamaguchi K. and Kandel D. B. (1984) Patterns of drug use from adolescence to young adulthood; predictors of progression. *American Journal of Public Health* 74, 673-80.