the late 1960s and coding of the cause of death was still erratic. There was little change in the annual number of deaths in the next 10 years. The two deaths in 1983 probably reflect the smaller number of cases with onset in 1982-3 than in earlier years, but there were six deaths in the first half of 1984. Forty-one per cent of deaths occurred between the ages of 10 and 14; this is in keeping with the median age of onset of 10 years, and the interval between onset and death of less than two years in 70% of cases.

Comment

Measles is widely considered a benign disease with a negligible mortality in developed countries. Certainly the number of deaths has fallen over the past 13 years, particularly in normal children; in the first four years 65% of deaths were in normal individuals compared with 35% in the last four year period. Nevertheless, over half the 270 deaths were in those with no pre-existing condition, and there has been no overall downward trend in the ratio of deaths to notifications. As in other studies, this ratio was highest in children under 1 year.^{1,2} The increased ratio of deaths to notifications in adults which has been reported may well be due to the larger number of deaths in abnormal adults; in this study 16 were over 15 years compared with three (aged 16, 20, and 94) in those previously normal.

Of those with pre-existing conditions, most were grossly

physically or mentally abnormal or both. Nineteen deaths occurred in children with lymphatic leukaemia, however, some of them in remission. Since children with leukaemia are now living longer measles is an increasing danger to them, and a report from Japan of the successful vaccination against measles of children with acute lymphatic leukaemia in remission is of interest.³

Clearly measles still carries a risk—not only of complications and subacute sclerosing panencephalitis but also of death—which is not confined to abnormal children.⁴ Vaccination has reduced the number of deaths, but 90% of deaths in those previously normal occurred in those over the age of 15 months, when vaccine is usually given. Protection of those under 1 year who are at greatest risk has up to now been complicated by the presence of maternal antibody. Recent reports of a vaccine produced in human diploid cells which has been given successfully at 4-6 months may be the answer.⁵

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Lesson of the Week

Problems with inactivation of drugs used in Parkinson's disease

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All manufactured drugs have a finite shelf life even under optimal storage conditions. If drugs are kept for excessive periods or in an inappropriate environment chemical change of the active ingredient—for example, by hydrolysis—may result in a reduced or absent therapeutic response.

Case report

A 66 year old woman had developed symptoms of Parkinson's disease at the age of 54. Her physical ability steadily deteriorated, and she was initially treated with amantadine and orphenadrine by her general practitioner. This resulted in improved mobility, and her condition remained static for several years. About 10 years after her initial presentation she was referred to a neurology outpatient clinic. Her walking had deteriorated, she often fell, and resting tremor had developed. She also complained of dysphagia with a sensation of food sticking at the back of her throat, and she had lost about

Drugs can be inactivated by altering their formulation. Full details of stability should be obtained from the manufacturer

12.7 kg in weight. Barium swallow showed neuromuscular incoordination in the pharynx; oesophagoscopy yielded normal results. It was concluded that the dysphagia was due to Parkinson's disease.

She was treated with combinations of levodopa and a decarboxylase inhibitor but could not tolerate these preparations because of severe dyspepsia and vomiting. Her condition improved with a small dose of bromocriptine and was eventually managed with a combination of bromocriptine, orphenadrine, amantadine, and clomipramine for bouts of severe depression. With this drug regimen her symptoms were fairly well controlled and her weight was static for the next two years. Then her dysphagia became more noticeable and she began to have severe problems taking her tablets even when they were crushed.

Her general practitioner and pharmacist gave her amantadine syrup and prepared suspensions of bromocriptine and orphenadrine. Soon after this her tremor became more severe and she was unable to feed herself or to perform the simplest motor tasks unaided. She also developed distressing akathisia. Her dysphagia became almost absolute, and she was eventually admitted to hospital as an emergency with dehydration and cachexia.

She was fed and rehydrated via a nasogastric tube. The pharmacist (JF) and the drug manufacturers informed us that bromocriptine is unstable in

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suspension and rapidly becomes inactive in this form. Orphenadrine may be suspended in solution but remains stable for only 14 days at a pH below 5. Our patient had been obtaining monthly supplies of each drug, and often up to six weeks elapsed between her obtaining and finishing each supply. Her rapid deterioration was probably due to the inactivity of her drugs in suspension.

Amantadine syrup was continued, the bromocriptine suspension stopped, and benzhexol suspension substituted for orphenadrine. As the dose of benzhexol was gradually increased her akathisia resolved and her tremor and dysphagia improved. After removal of the nasogastric tube she could manage a soft diet and started gaining weight. She was discharged taking this drug regimen and subsequently made satisfactory progress.

Discussion

Impaired mastication, dysphagia, and drooling of saliva have been recognised features of paralysis agitans since James Parkinson's original description of this condition.¹ They occur commonly in, and are present at, all stages of the condition.² Despite extensive studies no single cause of these symptoms in Parkinson's disease is generally accepted, and various hypotheses have been advanced.²⁻⁶ Recommendations for treatment are equally varied. Case reports have been published showing improvement in dysphagia after the administration of levodopa.⁷⁻⁸ A controlled study, however, showed no appreciable change in deglutition before or after such treatment.⁹ Our patient seemed to respond satisfactorily to the centrally acting anticholinergic drug benzhexol.

Patients with dysphagia from whatever cause, whether they are elderly, unconscious, or terminally ill, often require drugs in the form of syrups or suspensions to overcome the problems of swallowing tablets. Great care needs to be taken to ensure that the drugs are not being inactivated by administering them in this manner. Manufacturers' formulations should be used when possible. If the formulation of a drug needs to be altered expert pharmaceutical advice must be obtained. The table gives details of the availability of common drugs used in the treatment of Parkinson's

disease and precautions to be taken when the preparations can be given as a syrup or suspension.

Anti-parkinsonian drugs

Preparation	Tablets or capsules	Syrup
Amantadine	100 mg	50 mg in 5 ml
Levodopa	125, 250, 500 mg	Yes*
Levodopa and benserazide	Madopar 62.5, 125, 250	No
Levodopa and carbidopa	Sinemet 110, 275, Plus	No
Bromocriptine	2.5, 5, 10 mg	No
Benzhexol	2, 5 mg	5 mg in 5 ml
Orphenadrine	50 mg	Yes†
Procyclidine	5 mg	2.5 or 5 mg in 5 ml
Benztropine	2 mg	Yes‡
Selegiline	5 mg	Yes§

*Temporary formula available. Stable for 14 days. Protect from light.

†Temporary formula available. Stable for 14 days at pH<5.

‡Highly soluble in water. Stable for seven days in syrup.

§Temporary formula available. Stable for five days.

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Medicine and the Media

Booze on the telly

Alcohol misuse and the portrayal of health problems in the media are both fashionable topics, so I find it surprising that there has not been more study in Britain of how alcohol is portrayed in the media. The Independent Broadcasting Authority (IBA) did do two small surveys in the mid '70s and the suppressed Think Tank report on alcohol recommended that both the government and the broadcasting authorities look more closely at "the presentation of alcohol consumption on television and radio," but the problem has been largely forgotten. The tide of amnesia may, however, be turned by a meeting last week on the presentation of alcohol in the mass media which was organised by the Institute of Alcohol Studies and held in the lion's den—the headquarters of the IBA.

But, oddly, it was the lions themselves who seemed to expect to be eaten. The motley crew of doctors, health workers, and media researchers who turned up wanted to talk about whether the media could help them out in their battle to combat Britain's alcohol problem, whereas the four representatives of the IBA (two of whom smoked almost continuously) and one producer from the BBC seemed to imagine that they were being confronted by a gang of zealots who wanted to force various characters to stop drinking their way through each episode of *Dallas*. Professor Anthony Clare (not unknown on television himself) got very upset at being labelled as

part of the lunatic fringe and pointed out that he could hardly be more ordinary, with six children watching masses of television and himself (so he is) a *Dallas* addict.

But before the meeting drifted into confrontation some useful points were made. Advertising, sponsorship, health education, newspapers, and radio were all mentioned briefly, but the meeting was primarily concerned with how alcohol is portrayed in dramas and soap operas on television. American research has shown that alcohol features a great deal in these programmes. A study carried out by the Annenberg School of Communications in Pennsylvania and summarised in the *New England Journal of Medicine* in 1981 (305:901-4) showed that 80% of prime time programmes show or mention alcohol. The researchers calculated that "conservatively, a youngster too young to drink, will be exposed to 10 drinking acts on television during a day's viewing. . . ." The portrayal of alcohol was only one part of the study, which concluded generally that prime time television is a television of mayhem, action, power, danger, violence, and crime. The main characters eat and drink hugely (but, importantly, smoke little) and yet rarely suffer any consequences from their excesses. Another American study published in the *Journal of Communication* in 1981 (31:58-67) looked at what people drank on television and found that in order of frequency it was