complications. Three patients had haemoptysis and two slight epistaxis. Three patients vomited, including the one in whom the procedure was abandoned. There were 39 visible tumours. In 29 out of the 38 of these that were examined the histological opinion was definitive. Failure to make a positive diagnosis was associated with necrotic tumour tissue, previous radiotherapy, or a difficult biopsy. Where the appearance was of extrinsic compression a positive diagnosis was possible in only two out of 11 cases. In 11 cases examination showed non-malignant disease.

Comment

This small study is the first that has attempted to assess the need for sedation in fiberoptic bronchoscopy and the reactions of patients when sedation is not used. The results show that without sedation fiberoptic bronchoscopy remains quite acceptable to the patient. The incidence of complications after fiberoptic bronchoscopy is low^{1 2} and is often related to general anaesthesia or sedation. When these are not given the procedure becomes yet safer and the need for admitting the patient to a bed, even as a day case, is usually avoided. The diagnostic yield in this series is comparable with that obtained in other series^{2 3} but could be improved with the addition of brush cytology.

I thank Drs G S Graham and K B Robinson for histological interpretation, Mrs S Anderson and Mrs T Curtis for assisting, Dr D A Ellis for performing some of the bronchoscopies, and Miss A Willis for secretarial help.

¹ Credle WF, Smiddy JS, Elliott RC. Complications of fiberoptic bronchoscopy. *Am Rev Respir Dis* 1974;109:67-72.

² MacDonald JB. Fiberoptic bronchoscopy today: a review of 255 cases. *Br Med J* 1975;iii:753-5.

³ Webb J, Clarke SW. A comparison of biopsy results using rigid and fiberoptic bronchoscopes. *Br J Dis Chest* 1980;74:81-3.

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Use of glasses by adolescents with good vision

There is good evidence that many adolescents who are given glasses after sight testing do not wear them. In a national survey of vision screening of adolescents¹ as many as 33% of the children did not bring their glasses for the test. Nearly half of these children could see well without glasses. The inference drawn was that the children thought they got no benefit from wearing their glasses. So are National Health Service resources being wasted?

Methods and results

To throw light on why children do not wear their glasses, we asked all 14- and 15-year-olds in one London borough who had been prescribed glasses and had a distance acuity of 6/9 or better to bring their glasses for analysis of the prescription. As in the national survey,¹ some came for examination without their glasses. We asked them how often they wore their glasses. Out of 65 who answered, 20 wore them as prescribed, but 17 wore them occasionally and 28 never wore them. We analysed the prescription of 80 pairs of glasses and found that 18 out of 25 children who seldom or never wore their glasses had been given minimal prescriptions regardless of whether they had astigmatism. Out of 25 regular users, only eight had minimal prescriptions, and regular users were more likely to have an unaided vision of 6/9 than 6/6. Nine children had a defect of near vision in one eye, and seven wore their glasses, though all nine had more than minimal prescriptions.

Discussion

The rejection of glasses by older children who see normally without them is sensible. Most of the children we examined had glasses of low power. As would be expected, those who wore their glasses were more likely to have a measurable, though slight, visual defect for distance or in some cases in near vision. It was difficult to

understand why glasses with one plain lens and the other the weakest lens in the box were ever prescribed. One child with completely normal vision for near and distance had been prescribed glasses (never worn) nearly identical to those prescribed for dyslexia. Another had had three changes in prescription in two years. The national survey¹ showed that low-power lenses were ordered less frequently in the north of England than elsewhere in Britain. So the criteria for issuing prescriptions varies and needs to be defined.

Most of the eye tests had been given because of complaints of eyestrain or headache, more often in girls than boys, and symptoms either resolved spontaneously or resolved after a short period of wear, which shows the power of placebo. Four children actually complained that their vision was worse with their glasses, and this was confirmed in one eye in each case (the better eye).

Now that the form GOS1 has been abolished, doctors have little influence over how visual problems are handled. But our results show that when doctors order an eye test for adolescents whose eyesight is good parents should be told that the test is only to exclude disease. We are not suggesting that community and school doctors should abandon screening or referral, because there is a chance of a pathological cause of eyestrain or headache. But we think they should be lenient toward older children who claim that their glasses are useless, and especially toward those whose distance vision is 6/6 even in one eye. Nevertheless, we do not make these recommendations for younger children.

We thank Dr Rosemary Graham, area specialist in community medicine (child health), Merton, Sutton and Wandsworth Area Health Authority, and all the medical and nursing officers who helped; and the heads of the schools who welcomed us and their pupils who co-operated cheerfully.

¹ Peckham CS, Gardiner PA, Tibbenham A. Vision screening of adolescents and their use of glasses. *Br Med J* 1979;i:1111-3.

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Prevention of infection after abortion with a supervised single dose of oral doxycycline

Although most induced abortions have no serious delayed or immediate consequences, pelvic infection follows in about 1.5% of cases¹ and may permanently impair fertility. Since many women who have abortions intend to have children later, the prevention of infection is particularly desirable. Prophylactic antibiotics are increasingly used in many surgical procedures but are not routine or even usual after abortion, although there is one report² of a non-significant but not unimpressive reduction of infection. Most patients who have had an abortion are discharged within a few hours of operation, and compliance with a course of oral antibiotics (as currently used at British Pregnancy Advisory Service clinics) is likely to be poor, while most conventional single-dose prophylactic antibiotics are too short acting or have too narrow a range of activity to eradicate organisms such as gonococci and chlamydia that may cause infection after abortion.

Doxycycline (Vibramycin) is a long-acting tetracycline, and a single oral dose of 500 mg usually gives effective blood concentrations for at least four days.³ It has the low toxicity of tetracyclines, but absorption is unimpaired by food and it is effective against gonococci and chlamydia. I present the results of a controlled trial, in nearly 3000 patients, of doxycycline in the prevention of infection after abortion.

Patients, methods, and results

Because patients having an abortion are understandably difficult to follow up (especially patients of the British Pregnancy Advisory Service, who come

from all over Britain) the design of the trial was based on that used by Hodgson *et al.*² During the study, all patients having an abortion at one Advisory Service nursing home (other than those having simultaneous sterilisation) were given, under direct nursing supervision, either five 100 mg doxycycline capsules or five placebo capsules, two periods of placebo administration alternating with two similar periods of doxycycline. The nurses did not know the contents of the capsules.

Patients were given leaflets explaining the nature of the trial and prepaid forms on which to report any complications, especially infection. They were also given a 24-hour telephone number for the same purpose. While it was not expected that reporting would be complete, there was no reason to suppose that the rate of reporting would differ significantly among the four periods.

A total of 1519 patients were given doxycycline and 1431 placebo. In the placebo group, there were eight reported cases that seemed to include pelvic infection, compared with only one in the doxycycline group. This difference was significant at a confidence level of over 95% (table; $\chi^2=4.37$ using Yates's correction factor).

Reported cases of pelvic infection in women having an abortion and given placebo or doxycycline after operation

Case No	Hospital admission	Abortion-infection interval (days)	Clinical details	Weeks pregnant at abortion
<i>Placebo group (n = 1431)</i>				
1	Yes	2	Further curettage	12
2	No	16		9
3	Yes	2		8
4	No	Not known		9
5	Yes	4	Further curettage	8
6	Yes	5	Salpingitis; four weeks off work	10
7	No	3		14
8	Yes	5	Salpingitis	10
<i>Doxycycline group (n = 1519)</i>				
9	No	21		8

Comment

Doxycycline 500 mg considerably reduced the incidence of infection after abortion. I suggest that this was chiefly because single-dose supervised administration virtually eliminated the problems of compliance and poor absorption. These results support the findings of Hodgson *et al.*² and are significant. The greater difference between the placebo and antibiotic groups in my study compared with that in the results of Hodgson *et al.* may reflect the necessarily inferior and fluctuating blood concentrations to be expected of their four-day, six-hourly unsupervised courses of tetracycline.

Although nausea is a recognised side effect of doxycycline (and other antibiotics) especially at high dosage, it was rarely seen and hardly ever led to vomiting. Single-dose supervised administration requires no more nursing time than giving patients a supply of antibiotics to take with them, and the resultant savings on the cost of treating pelvic infections would probably exceed the cost of the antibiotic.⁴ The benefits of avoiding infertility after abortion are difficult to quantify but must justify routine use of this prophylactic treatment, which should probably be adopted without delay pending further studies. The treatment may also be suitable for prophylaxis in other operations.

I thank the nursing and medical staff of the British Pregnancy Advisory Service for their enthusiastic co-operation, and Dr L McKay, Pfizer Ltd, for generously supplying Vibramycin and placebo capsules.

The views expressed in this paper do not necessarily represent those of the trustees of the British Pregnancy Advisory Service.

¹ Blaxall MO, *et al.* *Legalised abortion and the public health*. Washington: Institute of Medicine; National Academy of Sciences, 1975.

² Hodgson JE, *et al.* Prophylactic use of tetracycline for first trimester abortions. *Obstet Gynecol* 1975;45:574-8.

³ Adadevoh BK, *et al.* Serum levels of doxycycline in normal subjects after a single oral dose. *Br Med J* 1975;i:880.

⁴ Swartz WH. Prophylaxis of minor febrile and major infectious morbidity following hysterectomy. *Obstet Gynecol* 1979;54:284-8.

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Deaths from rhesus haemolytic disease in England and Wales in 1978: accuracy of records and assessment of anti-D prophylaxis

In this report we analyse the deaths from rhesus haemolytic disease of the newborn during 1978 in England and Wales; the methods used are similar to those used in our previous study.¹

Methods and results

The data for 1978 were kindly provided by Dr J A C Weatherall, of the Office of Population Censuses and Surveys. She sent us death certificates of 38 babies born alive and 86 stillbirths. These form,² or will form, the official statistics for 1978. In addition she sent us the certificates derived from "multiple coding"³ of two liveborn babies with the disease (making a total of 40) and 16 stillbirths (making a total of 102), although multiple-coded cases do not appear in the official statistics. We then obtained from the doctors in charge of the patients either the complete notes or very full abstracts, from which we made our final assessment. Except for the multiple-coded cases, all certificates were coded as 774 or 775 and their subunits. These codes were taken from the 8th revision of the *International Classification of Diseases (ICD)*,³ the 9th revision having come into use only on 1 January 1979. Code 774 refers to haemolytic disease of the newborn with kernicterus, and code 775 to the same disorder without mention of kernicterus.

As before,¹ our aims were to evaluate the accuracy of the death certificates, to find out the circumstances in which the mothers had become immunised, and to assess the efficiency of anti-D prophylaxis. The table shows the two years compared, with the rhesus deaths divided into eight categories. Occasionally difficulties of categorisation arose and the assignment then made was the most probable one. Category 3 was the most problematical,⁴ and here we included only those mothers in whom the evidence pointed to primary immunisation in their first full-term pregnancy. These mothers specifically had no history of abortions, anti-D was found in only the last few weeks, and the infant was only mildly or not at all affected. Category 3 is important as being relevant to whether or not antenatal anti-D prophylaxis should be introduced.

Analysis of death certificates and case notes sent to us

Category No	Category	1977		1978	
		Live-born infants	Stillbirths	Live-born infants	Stillbirths
1	Immunised after term deliveries before anti-D available	12	37	10	28
2	Immunised by abortion before anti-D available after abortions	3	1	1	1
3	Immunised during pregnancy: Before 28th week	0	0	0	1
	After 28th week	6*	6*	2	8
4	Immunised by Rh antigens $\bar{e}$ or E, or both (mother D positive and therefore no prophylactic anti-D given)	1	3	1†	2†
5	Immunised despite anti-D prophylaxis (failures)	2	7	3‡	4‡
6	Immunised and no record of anti-D having been given when indicated	16	16	9	19
7	Immunised by blood transfusion	0	0	0	2
8	Uncodable for category (notes lost) but information denoted rhesus death	0	0	0	2
Total No of rhesus deaths		40	70	26	67
Total No of non-rhesus deaths§		14	31	14	35
Grand total		54	101	40	102

*These figures are the ones given in our first report.¹ They were subsequently revised⁴ and four mothers were reallocated to other groups (three to category 6 and one to category 1).

†These cases were also immunised against Kell.

‡The mother of one of these babies was also included in the 1977 study.

§The main category of non-rhesus deaths consists of babies with hydrops due to causes other than rhesus haemolytic disease of the newborn but for whom the coding is incorrect. In 1977, 11 of the 14 non-rhesus deaths of liveborn infants were of this type, as were 13 of the 31 stillbirths. In 1978 the figures were nine out of 14 for liveborn infants and 23 out of 35 for stillbirths. The other non-rhesus deaths were due to miscellaneous causes, but in only one case was the death certainly the result of a haemolytic condition other than rhesus (the haemolytic uraemia syndrome). There was also one doubtful case due to ABO incompatibility.

Official statistics of the Office of Population Censuses and Surveys—As in 1977¹ the official figures of the Office of Population Censuses and Surveys are inflated by the inclusion of many non-rhesus deaths. On the other hand, they do not include rhesus deaths obtained by multiple coding. In the table only a 25% sample of the multiple-coded cases is included, so that both rhesus and non-rhesus deaths are underestimated. Of the 1978 liveborn babies, the two multiple-coded cases were both rhesus deaths, and of the stillbirths, four of the 16 were rhesus and the remaining 12 non-rhesus deaths.