reported number of serious side effects per million defined daily doses (taken as 2 g for these drugs) is 0.8 for flucloxacillin and 3.4 for cephalexin (extracted from records of the Swedish adverse drug reactions advisory committee, Uppsala, Sweden, 1989). Thus in our analysis the number of serious side effects was 0.03 and 0.15 respectively, the number of defined daily doses being 43 200 ($80 \times 3 \times 360/2$). Pseudomembranous colitis is the single most common serious side effect. The average number of days in hospital for patients with diarrhoea induced by antibiotics was four at the department of infectious diseases in Lund in 1987. Thus $C_{sc} = kr\ 276$ (£25) for flucloxacillin ($0.03 \times kr\ 2300$ (£205) per hospital day $\times 4$ hospital days) and $kr\ 1380$ (£123) for cephalexin ($0.15 \times kr\ 2300$ (£205) $\times 4$).

Thus the cost saved per infection prevented is $kr\ 119\,459$ (£10 666) with flucloxacillin and $kr\ 136\,617$ (£12 198) with cephalexin.

Comment

We were unable to assess accurately the cost of many things that are more likely to be a burden to patients with infection—for example, transportation, technical aids, staying in a nursing home, and laboratory tests. Indirect costs such as the costs of sick leave and early retirement may be similar to direct costs for patients with rheumatoid arthritis and arthrosis.³ Thus we

certainly underestimated the costs of treatment for a patient with infection.

The cost saved per infection prevented is probably higher than that calculated here as we arbitrarily set the duration of prophylaxis at one year. Most wounds will be operated on and should then heal within a few months.

Twelve thousand knee arthroplasties were performed in Sweden (8.3 million inhabitants) during 1975-85. Eighty nine of the patients developed haematogenous infection, which in 28 cases originated from skin lesions (unpublished data). If 85% of these 28 infections could have been prevented $kr\ 3\,251\,485$ (£290 312) would have been saved.

Infected knee arthroplasty is an important problem medically as well as economically. To prevent haematogenous infections prophylactic antibiotic treatment should be given to patients with skin ulcers until these have healed.

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Slipped upper femoral epiphysis in an amenorrhoeic athlete

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Delay in the menarche is a recognised feature of endurance training. We report on a 17 year old runner with primary amenorrhoea who had a slipped upper femoral epiphysis.

Case report

A 17 year old girl presented to the sports injuries clinic with a nine month history of pain in the right thigh. She was a middle distance runner of county standard and as part of her training ran 64 km each week. She had been training since the age of 10. The pain had started gradually and had not been associated with any injury but was aggravated by exercise and prevented her from doing intensive training. She had been treated with physiotherapy, but this

had made little difference to her symptoms. She also had primary amenorrhoea, which was thought to be related to her training.

Examination showed a physically immature 17 year old girl. Her hips and back were normal. An x ray film of the pelvis showed partial slipping of the right femoral epiphysis (figure). She was admitted to hospital, where internal fixation was performed. She made a good postoperative recovery and was advised to stop training for the next year to allow the epiphysis to close.

Before the operation her bone age was 14.1 years (revised method of Tanner and Whitehouse, 1975) and her physical maturity was Tanner stage 3/4 (that is, peripubertal). Her body fat was only 15.3% (by the established method of Durnin and Womersley, 1974), compared with a normal range of 20-30%. When she returned to the clinic after two months' rest from training her body fat had increased to 16.7%, menarche had occurred, and an x ray film confirmed that the femoral epiphysis was closing.

Comment

A slipped upper femoral epiphysis tends to occur in young adolescents, with an incidence of two cases per 100 000.¹ It is more common in boys (ratio 3:1) and is probably an important cause of osteoarthritis in later life.^{1,2} It is a prepubertal disorder and is associated with various endocrine disorders including hypothyroidism, panhypopituitarism, and hypogonadism.¹ It is unusual in girls over the age of 14. In this case the pubertal delay caused by intensive training resulted in retarded maturation of bone. The consequent delayed closure of the femoral epiphysis increased the period in which the slip could occur. Furthermore, intense physical activity may have increased the shearing forces placed on the hip and so increased the risk still further.²

Menarche tends to occur later in athletes than in the general population.³ This reflects generalised pubertal delay and is related to the intensity of training and associated low levels of body fat. Frisch and McArthur estimated that body fat must reach a level of

Partial slipping of the right
femoral epiphysis

17% for menarche to occur and puberty to proceed.⁴ In this case primary amenorrhoea was almost certainly due to the intensive training. Once the patient was forced to stop training her percentage body fat rose and menarche occurred. This in turn accelerated the closure of the epiphysis.

The risks and benefits of intense training in adolescence are much debated. There is concern about the risks of stress fractures, osteochondrosis, and epiphyseal disorders in young athletes.⁵ A slipped upper femoral epiphysis is of particular concern because of its possible role in the development of osteoarthritis in later life. Female athletes with primary amenorrhoea

and pubertal delay are probably at high risk of these disorders.

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Awareness of AIDS in India: effect of public education through the mass media

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Public education aimed at preventing behaviour that predisposes to the spread of HIV infection is the main strategy for controlling AIDS, and many countries including India have used the mass media to disseminate information.¹⁻³ To assess the extent of the awareness of AIDS thus created we conducted a survey in Vellore among patients attending a medical outpatient department and a clinic for sexually transmitted diseases and among women prostitutes.

Subjects, methods, and results

After obtaining their informed consent we interviewed all the prostitutes attending a custodial care institution for prostitutes and all the patients attending a clinic for sexually transmitted diseases at the district hospital during one week; we also interviewed 231 of the 250 patients attending the medical outpatient department at this hospital over two days. We assessed awareness of AIDS and socioeconomic⁴ and demographic details with a special form.

The table gives the results for the two groups of patients. Most subjects in all three groups were ignorant of AIDS (patients attending outpatient department, 133/231 (58%); patients attending clinic for sexually transmitted diseases, 103/134 (77%); and prostitutes, 68/71 (96%)). Among the patients attending the outpatient department ignorance about AIDS was associated with female sex, living in a rural area, illiteracy, and lower socioeconomic state. To exclude female sex as a confounder we analysed men

and women separately. The lack of knowledge among men was associated with illiteracy ($p < 0.05$), lower socioeconomic class ($p < 0.05$), and living in a rural area ($p < 0.05$); among women it was associated with illiteracy ($p < 0.001$) and lower socioeconomic state ($p < 0.001$).

The lack of awareness about AIDS among patients with sexually transmitted diseases was associated with illiteracy and lower socioeconomic state. All 71 prostitutes were from the lowest socioeconomic class, 67 (94%) were illiterate, and only three (4%) had heard about the disease.

Newspaper and radio were the commonest channels of information, but even these had reached only about a quarter of the sample. Subjects who were aware of the sexual mode of transmission of HIV, the seriousness of AIDS, the lack of treatment, and preventive measures formed a minority.

Comment

This study showed that the efforts at health education before our survey were inadequate and had not reached the vulnerable and the high risk groups.⁵ Most of the Indian population is illiterate and poor and lives in rural areas; these people do not have access to most channels of mass communication. Thus new strategies for public education on AIDS and its prevention are urgently needed in developing countries.

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Awareness of AIDS and sociodemographic variables among patients attending medical outpatient department and clinic for sexually transmitted diseases

	Sex		Area of residence		Literacy		Socioeconomic class		Total
	M	F	Urban	Rural	Illiterate	Literate	I-III	IV, V	
<i>Patients attending medical outpatient department</i>									
No of patients	107	124	90	141	71	160	79	152	231
Aware of AIDS:									
Yes	62 (58)	36 (29)	48 (54)	50 (36)	11 (16)	87 (54)	56 (71)	42 (28)	98 (42)
No	45 (42)	88 (71)	42 (47)	91 (65)	60 (85)	73 (46)	23 (29)	110 (72)	133 (58)
χ^2	18.9**		6.5*		28.9**		38.1**		
<i>Patients attending clinic for sexually transmitted diseases</i>									
No of patients	108	26	118	16	69	65	18	116	134
Aware of AIDS:									
Yes	28 (26)	3 (12)	26 (22)	5 (31)	3 (4)	28 (43)	13 (72)	18 (16)	31 (23)
No	80 (74)	23 (89)	92 (78)	11 (70)	66 (96)	37 (57)	5 (28)	98 (85)	103 (77)
χ^2	1.7		0.3		26.1**		25.1**		

* $p < 0.05$, ** $p < 0.001$.