made by all sports organisations. I believe, however, that in most cases suitable treatment of a disorder may be achieved by selection from the very many drugs not banned in sport.—D A COWAN

The physician's response

I do not think there is necessarily a dilemma in this particular case. I think it would be irresponsible to treat "and be damned." Clearly, the patient's interests should be uppermost, and one of the most important things to an athlete is that he should continue to compete in his chosen sport. With a minor ailment such as sinusitis treatment can be given without using banned drugs. Although pseudoephedrine or ephedrine nasal drops are often used for sinusitis, alternatives such as Friars' Balsam inhalations, antihistamines, and antibiotics, when there is sign of infection, are accepted management by ear, nose, and throat departments. Occasionally, otorhinolaryngological referral may be necessary for antral wash-out. I would choose this form of treatment for the case described and would not accept that this is not the best. I am sure it is possible to invent cases where theoretically a banned drug was the treatment of choice. Careful explanation to the athlete in this circumstance would then be required. He or she should be informed that such a drug may be detected in the urine and could lead to problems with their supervising sports body. The patient's decision may then be to elect to stop training or refuse treatment. It would probably be wise for the athlete to inform his sports association that he was taking such a drug.

What would happen to an athlete in training if urine tests showed a banned drug that was being given legitimately by his general practitioner? I understand that this would not necessarily lead to an automatic exclusion. The sports body concerned would take into

account the doctor's reason for prescription of the drug, and this would weigh in the athlete's favour. It is the clinician's duty, however, to make sure that there is a cast iron reason for prescription of a banned drug to an athlete in training and that all concerned are informed.

In conclusion, I do not think this is an area that is as black and white as Dr Thomas makes out. It is possible to use other drugs without detriment to this patient. If there are rare occasions when a banned drug is required, informing all concerned should not necessarily lead to dire consequences for the athlete's future.—

C G CLOUGH

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Lesson of the Week

Multiple subaxial subluxation of cervical spine: a side effect of corticosteroids?

N A DUNN, N J LEWIS-BARNED, J K LLOYD JONES

Multiple subaxial subluxation of the cervical spine occurs predominantly in patients with inflammatory joint disease, usually rheumatoid arthritis, or after trauma. We describe a woman who developed multiple subaxial cervical subluxation and cervical myelopathy in the absence of inflammatory disease.

Case report

A 63 year old retired schoolteacher complained of pain and stiffness in her cervical spine of two years' duration. For two months she had suffered

Any patient who develops neck pain while receiving long term treatment with corticosteroids should be examined for possible subaxial subluxation of the cervical spine

distressing paraesthesiae, weakness, and clumsiness of both hands. She had had asthma for 25 years, treated continuously with oral corticosteroids.

On examination she was plethoric but not Cushingoid. Movement of her cervical spine was painful and limited in all directions. Heberden's and Bouchard's nodes were noted in the distal and proximal interphalangeal joints respectively of all her fingers, but there was no clinical evidence of inflammatory joint disease. She had weakness of grip of both hands with diminution of sensation to fine touch and pinprick. Position sense was unimpaired. Reflexes were enhanced in all limbs with normal muscle tone but equivocal plantar responses.

Full blood count and erythrocyte sedimentation rate, liver function values, and protein electrophoresis were all within normal limits. The Rose-Waaler and latex tests for IgM rheumatoid factor gave negative results and IgG rheumatoid factor was not detected. Radiographs of hands and feet

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showed no evidence of erosive joint disease but generalised osteoporosis was present. A radiograph of the lateral cervical spine in flexion (figure) disclosed multiple subaxial subluxation at C2-3 (2 mm), C3-4 (7 mm), and C4-5 (5 mm); those at C2-3 and C4-5 reduced on extension. There was no atlantoaxial subluxation.

She was admitted for reduction and stabilisation of the midcervical luxation by halo-jacket fixation. Within one week all neurological signs had disappeared. In view of this improvement posterior spinal fusion was carried out from C2 to C7. Six months later all neck pain had gone and she had no neurological abnormalities.

Radiograph of lateral cervical spine in flexion, showing multiple subaxial subluxation of C2-3, C3-4, and C4-5.

Comment

Subaxial subluxation of the cervical spine is rarely observed in the absence of trauma or inflammatory joint disease, usually rheumatoid arthritis. It has been described complicating cervical spondylosis but is usually confined to a single level and accompanied by severe degenerative changes affecting the lower cervical vertebrae,^{1,2} which give rise to a stiff, immobile lower segment. Multiple subaxial subluxation from C2 downwards may be regarded as a specific radiological sign of rheumatoid arthritis.^{2,3}

Our patient showed neither convincing evidence of rheumatoid arthritis, as assessed clinically, serologically, and radiologically, nor appreciable lower cervical spondylosis. She denied any injury to her neck. She had, however, taken oral corticosteroids continuously for 25 years. It has been suggested that prolonged steroid administration aggravates both atlantoaxial and subaxial subluxation of the cervical spine in rheumatoid arthritis,⁴ although undoubtedly duration and severity of disease also have a role.⁴ An increased incidence of subaxial subluxation has also been reported in asthmatic patients with no history of inflammatory joint disease who have been treated with long term oral steroids.⁵ None of these patients, however, had symptoms arising from the neck and none exhibited the severe multiple luxation shown by our patient. Both reports^{4,5} relate the severity of luxation to the duration of steroid treatment.

We suggest that subaxial subluxation of the cervical spine should be added to the long list of side effects of treatment with corticosteroids. Any patient receiving long term corticosteroids who complains of neck pain should certainly undergo lateral radiography of the cervical spine in flexion to exclude this condition.

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What is the legislation regarding maximum permissible noise levels at concerts and who is responsible for seeing that the regulations are enforced? Furthermore, if noise levels are kept to within the legal limits should a boy attending a concert experience discomfort in the ears afterwards and still be subjectively aware of impaired hearing 24 hours later?

Unlike industrial environments, where the Code of Practice for Reducing the Exposure of Employed Persons to Noise, 1972, offers certain guidelines, there is no specific legislation covering the maximum permissible noise levels at concerts. The Control of Pollution Act, 1974, section 58, however, requires a local authority, where satisfied that a noise amounting to a nuisance exists or is likely to occur or recur, to serve a notice on the person responsible requiring abatement of the nuisance. A similar power exists, under section 59 of the same Act, to a private individual who may complain directly to a magistrate's court if a noise nuisance is suffered. There are also two other Acts where the legislation may be useful when dealing with noise levels at concerts. The Local Government (Miscellaneous Provisions) Act, 1982, section 1, part 1, delegates the power to issue or refuse public entertainment licences to the local authority. This legislation requires the local authority to secure the safety of performers and other persons present at the entertainment, as well as to prevent unreasonable disturbance to persons in the neighbourhood. The Act covers only live entertainment, and the use of electronic equipment or not more than two live performers is exempt. Also, the Health and Safety at Work etc Act, 1974, part 1, section 3, notes that it is the duty of every employer and of every self employed person to conduct their undertaking in such a way as to ensure, so far as is reasonably practicable, that people not in their employment who may be affected are not exposed to consequent health and safety risks. Under the Health and Safety (Enforcing Authority) Regulations, 1977, the local authority is responsible

for enforcing this legislation in non-industrial premises, and the environmental health department undertakes any necessary duties.

In the assessment of this boy's complaint more information is needed about his attendance at concerts. For example, the sound pressure levels from orchestral music do not produce acoustic trauma, whereas rock and roll and discotheque music may produce such effects.¹ The mean noise levels in discotheques are 110 dBA, and transients exceed 122 dBA.¹ Thus the auditory pain threshold of 120 dBA may be reached. Statistically significant hearing losses have been found in young people who attend pop music functions at least once a month,² and two hours of exposure to noise levels in discotheques cause a temporary threshold shift of the audiogram in 16% of people.³ As it has been estimated that around 60-100 people a year in the United Kingdom may achieve some hearing disability from attending pop concerts,⁴ this boy might be suffering the effects of acoustic trauma. Noise levels need to be reduced to 100 dBA to prevent a temporary threshold shift in the audiograms of 98% of exposed people.³ Musicians refuse to play with such restrictions, however, fans object to interference, and people may benefit socially from this entertainment.² Available legislation is therefore difficult to enforce. Although discomfort in the ears and impaired hearing should not follow concert attendances, individuals vary in their susceptibility to noise induced hearing loss.⁵ This boy could therefore benefit from reducing the frequency of his attendances at loud concerts and by keeping away from the loudspeakers while there.—ROBIN PHILIPP, lecturer in community medicine, Bristol.

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