

Deforestation

Journalists working in Kenya, Uganda, and Tanzania presented three papers on the environmental and social consequences of tobacco growing. These were the most exciting and important of the conference. For many years the tobacco control community has received fragmentary reports about the deforestation caused by land clearing and tree felling to provide fuel for flue curing in areas where other fuels are unavailable. Many of these reports have been anecdotal and outrageously exaggerated. The three papers, which will be published in *Tobacco Control*, provided detailed accounts of the extent and consequences of deforestation and of the disruption to social life that tobacco growing causes local communities in these countries. They showed that industry estimations of surviving trees from reforestation projects were utterly fanciful and seem certain to ignite major concerns about the environment, particularly in the West.

Price policy

David Sweanor of the Canadian Non-smokers Rights Association presented compelling information on elasticities of demand for tobacco products under different taxation and excise conditions. He argued that if other developing countries follow the pattern found in Papua New Guinea (the only developing country in which the relation between tobacco consumption and taxation has been studied⁹) price policy will not only reduce tobacco consumption but swell national tax receipts for many years before a point of diminishing return is reached. At the end of the conference he took the same message to a workshop in South Africa, where his message was warmly received by the government's commissioner of excise and customs, representatives of the African National Congress's macroeconomic planning group, and local media. The main national business newspaper gave editorial support to a tax increase.

Tobacco advertising is widespread throughout most of Africa, with the exceptions of Sudan and Mozambique, which have total bans. Paul Wangai, a physician from Kenya, screened several British American Tobacco advertisements currently being shown

throughout the country from mobile cinemas. Advertisements ranged from scenes of footballing prowess and leaping Masai tribesmen, and promises of just reward for hard toil, to a depiction of a highly upwardly mobile young couple, replete with sports car, high fashion clothing, romantic poses, and under the table gropings, that would have broken practically every rule of even the weakest voluntary advertising code operating in the 1960s and 1970s in many Western countries. This was the first advertisement any of the delegates had seen from Africa which explicitly targeted women. Doubtless, the British directors of British American Tobacco would respond that the company advertises responsibly within the laws and guidelines of the country being targeted.

The main resolutions of the conference contained the usual litany of recommendations about advertising bans, tax rises, health education, and bans on sales to children. Important new recommendations included the need to increase the number of people working on tobacco control in Africa. This needed to be given priority by international donors and take precedence over ad hoc research projects and seminars—the usual way of doing things until now. Several recent World Bank reports, including the 1993 world development report, highlight the need for tobacco control to be seen as a priority in public health policy but have not specified how this should occur. Most advocates of tobacco control in Africa have heavy responsibilities in other jobs, so the development of a core group of networked advocates is fundamental to making progress.

1 Tobacco growers: stand by for some fuming. *The Farmer (Zimbabwe)* 1993; Nov 4:12.

2 World Health Organisation. *World health statistics*. Geneva: WHO, 1992.

3 International Agency for Research in Cancer. *Cancer incidence in five continents*. Lyons: IARC, 1992.

4 Yach D, McIntyre D, Saloojee Y. Smoking in South Africa: the health and economic impact. *Tobacco Control* 1992;1:272-80.

5 Walker AR, Walker BF, Sookaria FI, Segal I. Changing patterns of admissions of black cancer patients to hospital in Soweto, South Africa. *Cancer Journal* 1993;6:180-3.

6 Tobacco sales season ends in record \$400 million shortfall. *The Herald (Zimbabwe)* 1993; Nov 17:1.

7 *Tobacco Reporter* 1993; July:68.

8 Winkfield R. *The Farmer (Zimbabwe)* 1992; September 17.

9 Chapman S, Richardson J. Tobacco excise and declining tobacco consumption: the case of Papua New Guinea. *Am J Public Health* 1990;80:537-40.

Lesson of the Week

Dangers of oral fluoroquinolone treatment in community acquired upper respiratory tract infections

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BMJ 1994;308:191-2

Respiratory tract infections are among the commonest presenting to general practitioners. Upper respiratory tract infections of bacterial origin, such as acute otitis media and sinusitis, are commonly caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Streptococcus pyogenes*, and *Moraxella catarrhalis*. Lower respiratory tract infections, such as pneumonia, are most commonly caused by *Streptococcus pneumoniae*^{2,3} followed by *Mycoplasma pneumoniae*.⁴ The antimicrobial agents most often used for empirical treatment of these infections are amoxycillin, co-amoxiclav, and erythromycin. We have noticed that fluoroquinolones such as ciprofloxacin and ofloxacin are increasingly being used to treat community acquired upper respiratory tract infection even though they have poor activity against *S pneumoniae*. We report here two cases of life threatening systemic pneumococcal infection

originating in the upper respiratory tract in which a fluoroquinolone was prescribed unsuccessfully as first line empirical antibiotic treatment.

Case 1

A previously fit 28 year old woman was admitted with acute onset of severe headache and subsequent confusion and agitation. Two weeks earlier she had experienced a flu-like illness, with migraine-like headache, worsening cough, and large amounts of pus discharging from her nose. In the early morning before admission she had woken up with severe frontal headache worsening when leaning forward. She was seen urgently by her general practitioner, who found her blood pressure normal, a pulse rate of 90 beats/min, and a temperature of 39.5°C. She was

Fluoroquinolones should not be used when pneumococcal infection is likely, as in community acquired respiratory tract infection

given 100 mg pethidine intramuscularly for pain relief and 500 mg ciprofloxacin by mouth. Four hours later her general practitioner referred her to hospital.

A computed tomographic scan of her head showed bilateral opaque maxillary and ethmoidal sinuses but no sign of raised intracranial pressure or intracranial abnormalities. A turbid cerebrospinal fluid on lumbar puncture showed a white cell count of $13.5 \times 10^9/l$, 99% of which were polymorphonuclear white cells, and an erythrocyte count of $80 \times 10^6/l$. The Gram film showed Gram positive cocci suggestive of pneumococci. As a penetrating sinus abscess could not be excluded treatment was started with 3 g cefotaxime every six hours and 500 mg metronidazole every eight hours. The next day *S pneumoniae* serotype 6, sensitive to penicillin, was isolated from the cerebrospinal fluid, blood cultures, and the pus from her nose. Her treatment was changed to 1.8 g benzylpenicillin three hourly intravenously. Serum concentrations of penicillin were maintained below toxic concentrations. Over the 10 day course she recovered slowly but steadily.

Case 2

A 67 year old man was admitted with a three day history of right sided muscular weakness, sore throat, and severe dehydration due to worsening dysphagia. His history was unremarkable apart from hypertension and shortness of breath on exertion. A week before admission an upper respiratory tract infection had been diagnosed and treated with oral ofloxacin and linctus by his general practitioner. On admission he had a temperature of 38.5°C and painful, swollen, and hot right elbow and ankle joints as well as swollen metacarpophalangeal joints of the right hand.

While being admitted he developed severe stridor and an emergency intubation had to be performed. He developed septic shock and was admitted to the intensive care unit, where an ankle aspirate was taken. A Gram film showed streptococci and intravenous penicillin and netilmicin was started. A laryngoscopy performed in the intensive care unit showed a large solid laryngeal cyst, though no specimen was taken for culture. Next day *S pneumoniae* serotype 9, sensitive to penicillin and resistant to ofloxacin, was isolated from blood cultures and from the ankle aspirate. Subsequently an IgG myeloma and diabetes mellitus were diagnosed. The patient recovered slowly from this episode of septic polyarthritis complicated by acute renal failure and was discharged from intensive care after four weeks.

Discussion

The oral fluoroquinolones currently available in the United Kingdom, ofloxacin and ciprofloxacin, show excellent activity against Gram negative organisms, but their activity against Gram positive organisms, in particular streptococci and pneumococci, is limited. The minimum inhibitory concentrations of ofloxacin against *S pneumoniae* range from 1 to 4 mg/l and of ciprofloxacin from 0.5 to 4 mg/l, concentrations which are only marginally exceeded in bronchial secretions.⁵ In addition, there is in vivo and in vitro selection of ciprofloxacin resistant mutants of previously sensitive pneumococcal isolates.^{6,7} According to their datasheets both antibiotics are licensed for treating respiratory tract infections, but the datasheet for ciprofloxacin

does not recommend it in *S pneumoniae* infection⁸; that for ofloxacin states that in vitro activity against *S pneumoniae* is variable.⁹

Though our second patient presented with symptoms of an upper respiratory tract infection, his malignant haematological disorder probably made him more susceptible to invasive pneumococcal disease. Even though the myeloma was not suspected, the use of ofloxacin as initial treatment is questionable. The pneumococcal serotype isolated is not especially pathogenic, nor does it have an uncommon sensitivity pattern which might explain the failure of treatment.^{10,11} As a non-bacterial infective agent was the more likely cause of his initial upper respiratory tract infection, ofloxacin might have exerted selective pressure on the upper respiratory tract flora, leading to the emergence of *S pneumoniae* as a secondary pathogen. That ciprofloxacin was the initial choice of antibiotic in our first patient is worrying since a likely cause of her purulent nasal discharge was sinusitis, which is commonly caused by pneumococci.

Early clinical and experimental studies reported that ofloxacin was successful in treating otitis media and acute sinusitis caused by *S pneumoniae* and *Staphylococcus aureus*,^{12,13} but only a few patients were investigated and neither diagnostic methods nor evaluation criteria have been reported in full in English. Life threatening and fatal pneumococcal infections such as meningitis have subsequently been reported in patients treated with ciprofloxacin for respiratory tract infection or otitis media.^{14,15} The point these two cases reinforce is that neither ofloxacin nor ciprofloxacin is indicated for initial treatment of community acquired upper respiratory tract infection where *S pneumoniae* is likely to be a pathogen. The antibiotic of choice should be fully active against *S pneumoniae* as well as the other likely bacterial pathogens.

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(Accepted 13 July 1993)