Doctors for drug addicts

Drug addicts are unwelcome in most doctors' surgeries and outpatient clinics—they ignore Mrs Patrick Campbell's advice and "do it in the street and frighten the horses." Yet when questioned those same doctors will agree that addiction is a disease rather than a vice: for what is true of alcohol must surely also be true of cannabis or heroin.

Who, then, should provide the treatment that addicts need? The drug clinics set up in the 1960s (after a series of scandalous cases of irresponsible prescribing by doctors) seem to have faded into decline; they are used by only 4000 of the estimated 20 000 opioid addicts in Britain.¹ The 16 000 unofficial addicts obtain their drugs either on the black market or from private doctors. The reasons that addicts give for preferring private doctors (whom they have to pay) to the free clinics are set out at p 1876. This article criticises (as did the *Lancet*² 18 months ago) doctors who charge addicts fees for prescribing their drugs. Many addicts find the money they pay to their doctors either by reselling some of the drugs on the black market or by crime; doctors who, in effect, sell drugs to addicts are contributing to these consequences.

The Association of Independent Doctors in Addiction argues that their private practice is flourishing only because the NHS has failed. Many addicts can lead reasonably normal lives if provided with a regular supply of drugs. The association agrees that private practice is not the ideal solution. Its answer is for NHS doctors to be paid for each addict they treat. Such a scheme would, however, lead almost inevitably to a few doctors each treating large numbers of addicts—with their other patients drifting away. The ideal is several thousand doctors each with two or three addict patients—but that is fantasy, not reality.

When many countries have a common social problem and when their varied attempts to control it fail then the problem may seem insoluble. No one now believes that addiction to opioids can be eliminated; the questions are, firstly, how to restrict its spread to new generations of young people and, secondly, how to reduce the amount of crime directly or indirectly attributable to drug addiction.

Perhaps we should go back 20 years and look again at the fate of the clinics set up at least partly to combat the black market in drugs. For a year or two these clinics operated the classic "British system": they prescribed for addicts the drugs they wanted, in the hope that treatment for their addiction could be given concurrently. This policy destroyed the black market in drugs but it cured few addicts. For various reasons (including the views of clinic staff on the desirability of providing injectable drugs for addicts and an emphasis on cure rather than maintenance) treatment policies changed: oral methadone became the mainstay, and addicts who wanted injectables moved away to alternative sources.

The lesson, surely, is that the British system can minimise the effects of addicts on society but that it will not cure them. What will? Until better ways are found of treating addiction (to alcohol and tobacco as well as to hard and soft drugs) our priority should be containment of the epidemic of drug abuse. That means new policy objectives: more of the same will solve nothing.

¹ Advisory Council on the Misuse of Drugs. Treatment and Rehabilitation. London: HMSO, 1982.

² Anonymous. Drug addiction: British system failing. *Lancet* 1982;i:83-4.

Regular Review

Perioperative antibiotics

M R B KEIGHLEY

Most surgeons are probably thoroughly confused about the policy for the use of antibiotic cover in the perioperative period. This confusion may be due to the numerous studies which have been published on this topic, of which many are contradictory and a high proportion of poor quality.¹ Editors should try to ensure that they publish only original and scientifically valid work. Studies should be randomised and confined to a specific subspecialty of surgery. The dose of antibiotic and its timing and administration must be appropriate to provide adequate serum concentrations at operation. The results should include information on the bacterial isolates, stating whether or not they were sensitive

to the antimicrobial agents used. Careful ethical consideration must be given before a paper with "untreated" controls is accepted and, finally, the numbers of patients studied in the trial must be sufficient to show whether there is a difference between treatment groups.

Guidelines

The place for prophylactic antibiotic administration in surgery needs review—antibiotics are the most expensive drugs prescribed in hospitals, and two thirds of the pre-

scriptions are for prophylactic not therapeutic use. Regrettably, many newly qualified doctors approach their preclinical appointments without having received any guidelines on the principles behind the use of prophylactic antibiotics. When considering a patient for antibiotic prophylaxis the first question to be asked before surgery is whether the surgical field is contaminated with bacteria. If there is an area of cellulitis, an abscess, or a fistula (and this includes a stoma) or if a perforated viscus or an established infection is present before operation the term "prophylaxis" is inappropriate. Such patients need antibiotics in therapeutic doses, and the duration of treatment will depend on the virulence of the organism, the extent of the infection, and the patient's own host defence mechanism. The term "prophylaxis" can be applied only if there is no established infection.

The second question is to define whether the bacterial contamination is exogenous or endogenous. Exogenous sepsis is usually staphylococcal unless the wound is in the groin or near the perineum. This form of sepsis may be minimised by aseptic techniques, adequate preparation of the skin, and control of the environment of the operating theatre²; prophylactic antibiotics play no part in preventing such infections, and the incidence of sepsis is generally less than 2%. Thus patients undergoing herniorrhaphy, neurosurgical procedures, and operations on the salivary glands, breast, and peripheral blood vessels do not need antibiotic cover. The results of recent clinical trials suggest that perioperative antibiotic cover is indicated, however, for replacement of joints, heart valves, and arteries with synthetic grafts.^{3,4} Though the risk of sepsis in such patients is low, the morbidity and mortality of "implant sepsis" are high. In endogenous sepsis the bacteria originate from the female genital tract, the lower urinary tract, and the intestine. This form of sepsis is not influenced by preparation of the skin or the theatre environment, and perioperative antibiotics play an important part in preventing infection.^{5,6} Intraoperative contamination from the large bowel and the vagina is inevitable whenever these organs are opened. Contamination by bacteria from the upper gastrointestinal tract, bile, and urine will depend on the nature of the underlying lesion. The oropharynx is always colonised by oral anaerobes and streptococci. The stomach contents are usually sterile but are heavily colonised by staphylococci, streptococci, and oral anaerobes when there is hypochlorhydria. The latter may occur in patients with gastric ulcer or gastric cancer, in those receiving cimetidine, or in postoperative alkaline reflux.⁷ The bile is normally sterile, but in the presence of gall stones it is infected in 10-20% of patients—the incidence rises with age and is likely to be over 80% if there are stones in the common bile duct or bile duct strictures.⁸ The bacteria in infected bile are usually *Escherichia coli*, *Klebsiella* spp, and a variety of streptococci. In the small bowel bacterial counts are usually less than 10^6 organisms/l, the exceptions being intestinal blind loops, Crohn's disease, and acute obstructions of bowel, where the counts of bacteria commonly exceed 10^9 organisms/l.^{9,10} The colon always contains 10^{10} - 10^{12} organisms/g faeces and the faecal anaerobes exceed the aerobic coliform bacteria by a factor of between 10 000 and 100 000.¹¹ Urine is usually sterile unless there is reflux or obstruction of the urinary tract. Under these circumstances the endogenous pathogens are usually *E coli*, *Proteus* spp, and enterococci. Throughout reproductive life the vagina harbours large numbers of faecal anaerobes and streptococci.

The principle of antibiotic prophylaxis is to provide a concentration of antibiotic in the circulation and tissues that will kill any bacteria introduced into the operative field. The

risk of infection is high if the inoculum exceeds 10^6 organisms/l; nevertheless, lower bacterial counts will cause sepsis in the presence of foreign bodies, dead tissue, blood, and faeces.¹² Other factors which increase the risk of sepsis include extremes of age, diabetes, renal disease, malignancy, impaired phagocytosis, leukopenia, and certain drugs such as steroids and antimitotic agents.

For prophylaxis, short term perioperative antibiotic administration is as effective as giving the antibiotic for five to seven days.¹³ The antibiotic should be effective against the predominant pathogenic bacteria and given in a dose that provides a serum concentration at least four times greater than the minimum inhibitory concentration of these organisms for the duration of the operation. It is preferable to choose a non-toxic antibiotic, with low protein binding, which is not usually used as first line treatment for serious infections.

Route of administration

Controversy remains over the most appropriate route of administration of the antibiotic. Topical application into the wound at the end of an operation is not recommended, because this does not give adequate perioperative serum concentrations, and, though wound infection rates are low, the risk of septicaemia or abscess formation remains high. For the same reason intraperitoneal antibiotics are also not advised for prophylaxis. Antibiotics may be given by local infiltration into the site of the surgical incision before operation.¹⁴ This method is at least as good as systemic administration, and high concentrations of antibiotic are maintained both in the wound and in the circulation. The drawback is that the surgeon must remember to infiltrate for a second time if the wound is to be extended. Giving antibiotics by mouth is favoured by surgeons who specialise in surgery of the colon and rectum, on the premise that certain antibiotics will "sterilise" the colon—but this is only a theoretical concept. Few surgeons advocate the use of phthalylsulphathiazole and neomycin alone, but combinations of agents such as neomycin and metronidazole or neomycin and erythromycin are popular, especially with North American surgeons.¹⁵ Both of these combinations of antibiotics appreciably reduce counts of faecal bacteria in the colon,^{11,16} but disturbing the normal ecology of the colon has disadvantages, particularly the emergence of coliforms and staphylococci resistant to neomycin, superinfection by yeasts, and the development of pseudomembranous colitis.¹⁷ Several British and European studies have shown that systemic antibiotic administration is at least as effective and is certainly safer than giving oral antibiotics for prophylaxis in surgery on the large bowel.^{17,18} Hence the administration of short term systemic antibiotics is to be preferred for prophylaxis in colorectal surgery. If the operation is short, a single intravenous injection of antibiotic may be given in the anaesthetic room, and it is quite safe to use a large dose. If the operation is likely to last longer than one hour, it is advisable to give a concurrent intramuscular injection of the antibiotic as well, so that serum concentrations remain high throughout the operation. If the operation takes more than four hours a second intravenous dose is recommended.

Endogenous infection is usually caused by *E coli*, *Proteus* spp, and *Klebsiella* spp. In the stomach staphylococci are also frequently responsible for sepsis, but enterococci, though common, rarely cause infection alone and are of doubtful pathogenic significance. The faecal anaerobes are important as a cause of sepsis only in patients with small bowel obstruc-

tion and those who need colorectal surgery or gynaecological operations.

Prosthetic implants

I believe that antibiotic prophylaxis should be given only to a selected group of patients and that it should be given by the systemic route during the operation. Patients who require prosthetic implants should receive antibiotic cover with an agent such as a second generation cephalosporin or an aminoglycoside to protect against infection with staphylococci or Gram negative aerobes. Metronidazole or one of the newer broad spectrum cephalosporins, such as cefoxitin, cefotaxime, or latamoxef (Moxalactam), is advisable for patients having an abdominal hysterectomy. Single dose antibiotic cover is also advisable for patients who have infected urine and require dilatation, cystoscopy, transurethral resection of the prostate, and open operations on the urogenital tract; the choice should be dictated by the results of the cultures of urine. Some patients who require gastric surgery also need antibiotic cover, probably with a second or third generation cephalosporin—for example, those with malignancy, gastric ulcer, having revisional gastric operation, receiving cimetidine at the time of operation, and requiring emergency surgery for bleeding.⁷ Selective antibiotic cover with a semisynthetic uridopenicillin, co-trimoxazole, or a cephalosporin is recommended for elective surgery on the biliary tract to: patients over 70, those who are jaundiced, those known to have stones in the common bile

duct, and whenever the bile duct is explored at operation.⁸ For all other intestinal operations I believe that it is necessary to use a combination of metronidazole and either an aminoglycoside or a newer cephalosporin, since even the newest cephalosporins do not provide adequate cover against the anaerobic faecal micro-organisms. A well prepared bowel is particularly important now that the circular stapling devices are being widely used for restorative rectal surgery. When the bowel has to be opened during a low resection of the rectum, faecal contamination increases the risk not only of sepsis but also of dehiscence of the anastomosis.¹⁹ Antibiotics are therefore likely to be effective only if the preparation of the bowel is adequate; if it is not, peroperative lavage should be carried out.²⁰ If there is extensive faecal contamination despite these measures the wound should be left open and antibiotic administration continued for five days.

The selective use of prophylactic systemic antibiotics has undoubtedly reduced surgical morbidity and mortality, but, like many advances in medicine, it may fall into disrepute if any policy is abused. The dose and timing of the antibiotic must be accurately written up on the prescription card.²¹ The antibiotic should then go with the patient to the operating theatre, and the surgeon must ensure that it has been given. Above all, it must be remembered that only a few "high risk" patients need perioperative antibiotics.

M R B KEIGHLEY

Consultant Surgeon,
General Hospital,
Birmingham B4 6NH

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