In a follow up in Norway of 16 555 people (mostly men)¹⁶ coffee drinking was negatively associated with the incidence of colon cancer. There was, however, a linear interaction with age, the lowest relative risk being in the youngest. For those under 65 at the start of 11½ years' follow up a strong statistically significant negative relation was seen, whereas a non-significant positive association was seen in older individuals. A positive association between coffee drinking and death from colon cancer has been reported from an Adventist cohort,¹⁷ whereas no association was seen between coffee consumption and risk of colon cancer in Japanese men in Hawaii.¹⁸ The coffee consumption in both of these cohorts was considerably lower than that in the Norwegian cohort. Another explanation for the finding in Adventists may be that coffee consumption shows poor adherence to the lifestyle recommended by the church. Furthermore, the positive association was limited to the last 11 of 21 years' follow up.

How can these associations be explained? Our proposal, which is in line with what Bjelke suggested 12 years ago,¹ is that coffee contains substances that reduce the excretion of bile acids or neutral sterols, or both, thereby reducing the risk of colon cancer but increasing the serum cholesterol concentration. Bile acids, particularly secondary bile acids, are potent promoters of colon carcinogens in animals. Furthermore, groups with diets associated with a high risk of colon cancer have an increased excretion of sterol metabolites, and higher faecal bile acid concentrations have been found in patients with colorectal cancer than in controls.¹⁹ Lowenfels has proposed that in some of those who consume a high cholesterol, high fat diet a lower serum cholesterol concentration indicates increased cholesterol excretion²⁰—thereby explaining the inverse relation between serum cholesterol and the risk of colon cancer,²¹ an association which still is under debate.²² The mechanism we propose linking coffee consumption with increased cholesterol concentration but reduced risk of colon cancer may operate only in groups with a high fat intake. This could explain the positive (or absent) association between coffee drinking and risk of colon cancer seen in Adventists¹⁷ and the Japanese in Hawaii.¹⁸

We know of no data on the effect of coffee consumption on bile acid and neutral sterol excretion from the liver in man. A significant physiological effect of coffee on liver metabolism is, however, suggested by Arnesen *et al.*, who have shown an inverse relation between coffee drinking and γ -glutamyltransferase activity in the Tromsø population—even after adjustment for other variables, including alcohol consumption.²³

We believe that the repeated findings of a positive relation between coffee consumption and serum total cholesterol concentration and a reduced risk for cancer of the colon, at least in the Norwegian population, make it reasonable to examine in man the interrelation between coffee (brewed in different ways), bile excretion, and cholesterol metabolism.

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- 1 Bjelke E. Colon cancer and blood-cholesterol. *Lancet* 1974;ii:1116-7.
- 2 Thelle DS, Arnesen E, Førde OH. The Tromsø heart study. Does coffee raise serum cholesterol? *N Engl J Med* 1983;308:1454-7.
- 3 Mathias S, Garland C, Barrett-Connor E, Wingard DL. Coffee, plasma cholesterol, and lipoproteins. A population study in an adult community. *Am J Epidemiol* 1985;115:896-905.
- 4 Kark JD, Friedlander Y, Kaufmann NA, Stein Y. Coffee, tea, and plasma cholesterol: the Jerusalem Lipid Research Clinic prevalence study. *Br Med J* 1985;291:699-704.
- 5 Haffner SM, Knapp JA, Stern MP, Hazuda HP, Rosenthal M, Franco LJ. Coffee consumption, diet, and lipids. *Am J Epidemiol* 1985;122:1-12.
- 6 Curb JD, Reed DM, Kautz JA, Yano K. Coffee, caffeine, and serum cholesterol in Japanese men in Hawaii. *Am J Epidemiol* 1986;123:648-55.
- 7 Dawber TR, Kannel WB, Gordon T. Coffee and cardiovascular disease. Observations from the Framingham study. *N Engl J Med* 1974;291:871-4.
- 8 Arnesen E, Førde OH, Thelle DS. Coffee and serum cholesterol. *Br Med J* 1984;288:1960.
- 9 Førde OH, Knutsen SF, Arnesen E, Thelle DS. The Tromsø heart study: coffee consumption and serum lipid concentrations in men with hypercholesterolaemia: a randomised intervention study. *Br Med J* 1985;290:893-5.
- 10 Bjelke E. *Epidemiological studies of cancer of the stomach, colon and rectum; with special emphasis on the role of diet*. Vols 2-4. Ann Arbor: University Microfilms, 1973.
- 11 Abu-Zeid HA, Choi NW, Hsu PH. Factors associated with risk of cancer of the colon and rectum. *Am J Epidemiol* 1981;114:442.
- 12 Haenszel W, Berg JW, Segi M, Kurihara M, Locke FB. Large-bowel cancer in Hawaiian Japanese. *J Natl Cancer Inst* 1973;51:1765-79.
- 13 Dales LG, Friedman GD, Ury HK, Grossman S, Williams SR. A case-control study of relationships of diet and other traits to colorectal cancer in American blacks. *Am J Epidemiol* 1979;109:132-44.
- 14 Higginson J. Etiological factors in gastrointestinal cancer in man. *J Natl Cancer Inst* 1966;37:527-45.
- 15 Graham S, Dayal H, Swanson M, Mittelman A, Wilkinson G. Diet in the epidemiology of cancer of colon and rectum. *J Natl Cancer Inst* 1978;61:709-14.
- 16 Jacobsen BK, Bjelke E, Kvåle G, Heuch I. Coffee drinking, mortality and cancer incidence: results from a Norwegian prospective study. *J Natl Cancer Inst* 1986;76:823-31.
- 17 Phillips RL, Snowdon DA. Dietary relationships with fatal colorectal cancer among Seventh-Day Adventists. *J Natl Cancer Inst* 1985;74:307-17.
- 18 Nomura A, Heilbrun LK, Stemmermann GN. Prospective study of coffee consumption and the risk of cancer. *J Natl Cancer Inst* 1986;76:587-90.
- 19 Bresalier RS, Kim YS. Diet and colon cancer. Putting the puzzle together. *N Engl J Med* 1985;313:1413-4.
- 20 Lowenfels AB. Is increased cholesterol excretion the link between low serum cholesterol and colon cancer? *Nutr Cancer* 1983;4:280-4.
- 21 McMichael AJ, Jensen OM, Parkin DM, Zaridze DG. Dietary and endogenous cholesterol and human cancer. *Epidemiol Rev* 1984;6:192-216.
- 22 Neugut AI, Johnson CM, Fink DJ. Serum cholesterol levels in adenomatous polyps and cancer of the colon. A case-control study. *JAMA* 1986;255:365-7.
- 23 Arnesen E, Husebye N-E, Brenn T, Try K. The Tromsø heart study: distribution of, and determinants for, gamma-glutamyltransferase in a free-living population. *Scand J Clin Lab Invest* 1986;46:63-70.

HIV and sexual lifestyle

Human immunodeficiency virus (HIV) is predominantly sexually transmitted, and fears are widespread that Britain may be on the brink of a major heterosexual epidemic similar to that in Africa. Authorities agree that there will be a spread into the heterosexual population, but they disagree about the likely extent.

In Western societies HIV is still virtually confined to specific risk groups: homosexual and bisexual men, past recipients of blood and blood products, and intravenous drug abusers and their sexual partners and offspring. Further spread depends on the amount of sexual contact between those from high risk groups and the rest of the population. Bisexual men and heterosexual intravenous drug abusers, especially those who work as prostitutes to pay for their habit, are an obvious risk to the general population. In the United States 13 of 49 men with the acquired immune deficiency syndrome (AIDS) and no recognised risk factors admitted to sexual contact with prostitutes.¹

Homosexual practices seem to be the most efficient way of transmitting HIV and anal intercourse the most dangerous activity; the passive (anoreceptive) partner is much more at risk than the active partner. A recent study found no correlation between the presence of antibodies to HIV and either oral or rimming (oroanal sex), but the authors showed that fisting (brachioproctal intercourse) was a risk factor for the insertive partner.² The virus can enter the body through breaches in the mucosa and is present in semen, so that these statistical indications do not exclude reliably the risk of HIV

transmission by any type of penetrative sex. The results of this study may be used, however, to help assess the degree of risk for those who find celibacy unacceptable.

Heterosexuals may be less efficient at transmitting HIV, but the virus can certainly pass from men to women and from women to men during vaginal intercourse.³ And whatever their sexual orientation, those who have multiple sexual partners not only increase their chances of encountering HIV but also are more likely to acquire other sexually transmitted diseases, which may facilitate HIV transmission.

Despite worries of a heterosexual epidemic there is little evidence of this happening yet outside Africa. In the USA 96% of cases of AIDS belong to recognised risk groups—a figure that has remained constant for years.⁴ In Britain the Public Health Laboratory Service in its national surveillance of HIV antibody testing has not noted an outbreak in those without risk factors (McAvoy M, personal communication), and the low prevalence of antibodies to HIV in blood donors is further evidence against an impending epidemic. One explanation for these observations is that people choose sexual partners from their own social circle with very little mixing. This sexual insularity will tend to slow the advance of HIV.

HIV may well become endemic outside the current risk groups, but this could take years and might never be extensive. The question thus arises whether large sums of money earmarked for an advertising campaign might be better spent on improving treatment facilities or on basic research. An education campaign aimed at preventing the spread of HIV is, of course, to be welcomed provided that unnecessary fear is not provoked and that this rare disease is kept in perspective. Certainly, one could argue for more emphasis on the very low infectivity of the virus under normal circumstances and on the many ways by which it cannot be spread.

The gay community is well informed, and homosexual lifestyle has already changed.⁵ Many of those who are infected or at high risk practise the ideal of monogamy with "safe sex," which implies "dry kissing" and either mutual masturbation or the careful and consistent use of condoms. Education needs to be aimed at highly sexually active heterosexuals with a message neither dogmatic nor moralistic. Those outside high risk groups should be advised to use condoms with all casual partners and to reduce the number of partners as far as possible.

Evaluation of these educational measures may be difficult, but an alteration in sexual lifestyle should have a beneficial effect on other important sexually associated conditions such as tubal infertility and cervical cancer, which are far more common than AIDS.

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- 1 Lifson AR, Ancell RA, Brunet JB, et al. The epidemiology of AIDS worldwide. *Clinics in Immunology and Allergy* 1986;6.
- 2 Evans BA, Dawson SG, McLean KA, et al. Sexual lifestyle and clinical findings related to HTLV III/LAV status in homosexual men. *Genitourinary Medicine* 1986;62:386-91.

- 3 Calabres LH, Gopalakrishna KV. Transmission of HTLV-III infection from man to woman to man. *N Engl J Med* 1986;318:987.
- 4 Anonymous. Heterosexual transmission of human T-cell lymphotropic virus type III/lymphadenopathy-associated virus. *MMWR* 1985;34:561-3.
- 5 Burton SW, Burn SB, Harvey D, Mason M, McKerrow GM. AIDS information. *Lancet* 1986;ii:1040-1.

AIDS: a doctor's duty

Caring for the sick has always been a hazardous occupation. Even as recently as the first 40 years of this century doctors and nurses working with patients with diseases such as typhus or tuberculosis knew they risked infection which could be fatal. Pathologists risked death if they cut themselves in the necropsy room, and until the 1980s—with the introduction of an effective vaccine—medical and nursing staff regularly caught hepatitis B and sometimes were killed by it.

Against that background, how should doctors and nurses be responding to the rising numbers of patients infected with the human immunodeficiency virus (HIV)? All the evidence points to the risks being extremely small. HIV seems much less infectious than the hepatitis B virus, for example, and no health professional anywhere in the world is known to have contracted the acquired immune deficiency syndrome (AIDS) nosocomially (though a very few have developed antibodies to HIV after needlestick injuries).¹

Those doctors who are calling for patients to have antibody tests before they undergo surgical procedures—and those who refuse to treat patients who have antibodies—are contributing to current hysteria about the disease. The antibiotic era has changed public attitudes to infections; this has been evident in the overreaction by the popular media to "new" diseases such as legionnaires' disease and Lassa fever.² Doctors ought to have led public opinion on those occasions, but—sadly—some doctors contributed to the atmosphere of fear and isolationism. The same pattern is now being seen with AIDS; anyone who has kept abreast of reports in even a single journal should be familiar with the risks and the reasonable precautions, but some doctors are still making comments suggesting that they know little about the disease.

In simple terms AIDS and HIV carriage do not represent a substantial health risk for doctors; if they did there would have been reports of medical infection from the United States, where around two million people have antibodies to HIV. The Royal College of Nursing has had the courage to recommend the disciplining of any nurse who refuses to care for a patient infected with HIV.³ Should not the General Medical Council do the same?

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- 1 Geddes AM. Risks of AIDS to health care workers. *Br Med J* 1986;292:711-2.
- 2 Tilzey AJ, Webster M, Banatvala JE. Patients with suspected Lassa fever in London during 1984: problems in their management at St Thomas's Hospital. *Br Med J* 1985;291:1554-5.
- 3 Royal College of Nursing Working Party on AIDS. *Nursing guidelines on the management of patients in hospital and the community suffering from AIDS*. London: Royal College of Nursing, 1986.