

Letter from . . . Chicago

Elixirs of life

GEORGE DUNEA

The habit of living having been acquired before the habit of thinking, we mostly hope to live to a ripe old age; and, despite the bitter truth embodied in the ancients' saying that those whom the gods love die young, we remain, like Doctor Dulcamara's gullible clients, eagerly looking, if not for the elixir of love, then for the elixir of life.

So far the prospects are encouraging. Figures released by the National Centre for Health Statistics indicate that Americans are living longer than ever. A 65-year-old man now has an excellent chance of reaching 85. Within a decade the death rate from stroke has declined by 36%, that from heart disease by 23%. Each year some 20% fewer people die from accidents; and even more could be accomplished according to the Insurance Institute for Highway Safety, if one could curb the teenage drivers, especially at night—for nearly half of all deaths in those aged 16 to 19 are caused by car crashes, more than half of which occur at night. Then there is also the continuing senseless loss of life from shootings, increasing by 16%, no doubt reflecting prevailing attitudes towards gun control. Such attitudes are difficult to change, and even the American Medical Association, at a "brief debate" at the June meeting of its house of delegates, approved a motion to table this sensitive issue and turn a blind eye to this national scandal.

Progress also remains slow in the highly publicised fight against cancer, an overall 3.6% increase in deaths in the past decade hardly offering much grounds for optimism. Yet there remains much enthusiasm for breast self-examination (which may increase survival rate by 10-17%), for occult blood testing of the stool and proctoscopic examinations, and for Papanicolaou tests (which the American Cancer Society wants done every three years but the American College of Obstetricians and Gynaecologists yearly). According to the American College of Surgeons the five-year survival rates for the ten most common cancers have improved somewhat, for breast from 65 to 73%, for prostate from 57 to 68%, for uterus from 75 to 84%, and for the bladder from 62 to 70%. The incidence of cancer in people under 45 has decreased, but less improvement has occurred in the aged, who if they survive one cancer may well develop another. For people destined to die from heart disease, however, Monday is particularly unpropitious, especially in Manitoba, where investigators found a considerable excess of sudden cardiac deaths on that generally black day of the week.

Age a figment of the imagination

Yet if we could only alter our habits, as well as stay at home on Mondays, we could easily live to 150, for a long life is built into all of us, at least according to a neurosurgeon in Wisconsin who

disclosed his secrets at a recent seminar on preventive medicine. Age is only a figment of the imagination, he told his audience, the main ingredient in his elixir being the ability to handle stress, a positive mental attitude, exercising four times a week, drinking no more than three glasses of wine a day, and not smoking—for a packet of cigarettes a day shortens life by seven years. Good nutrition was also deemed beneficial, as were restricting sugar, fat, salt, and calories, and engaging in "socially acceptable sexual behaviour." But be that as it may, we are reminded by the opponents of mandatory retirement that a whole host of famous people made important contributions while being well over the age of 80, and equally noteworthy is the growing number of centenarians in the USA, increasing from 3200 to 13 000 within one decade. Yet the senators looking for the elixir of life found that most of the centenarians recently interviewed before the House Select Committee on Aging did not seem to have much in common regarding their life styles. Exercise did not seem to play an important part; it seemed more a matter of picking the right ancestors and the right genes; but one interesting observation was that many of the centenarians were in the habit of eating onions.

Onions, like garlic, have long been held to possess healing powers for a variety of ailments, for hypertension and diabetes, for freckles, gunshot wounds, and, of course, coryza. But, even if the elixir of life were to be found in an onion stew, its active ingredient remains to be isolated. It is unlikely to be the lachrymator substance, now identified as propanethial S-oxide, for the tendency of this volatile compound to hydrolyse to sulphuric acid causes tears in the kitchen and acid rain in the forests of North America. Prostaglandin A₁ is a more likely candidate, being possessed of anticoagulant properties, but at concentrations of one part per million the necessary therapeutic dose of onions would provide severe distress to the patients' immediate contacts. More socially acceptable might be dehydroepiandrosterone, an adrenal steroid normally present in man but declining with age, which has prevented mice from becoming fat or developing breast cancer, and which it is hoped may some day extend the life of man by 30-40 years.

Of more immediate import, however, is the notion of preventing hypertension in the predisposed by lowering the amount of salt in the diet, a course of action long recommended by several expert committees and professional organisations. Last February a consumer group presented the health secretary with a petition to that effect, signed by 6000 health professionals, emphasising that some frozen or tinned goods contained much more salt than its natural counterparts. Particularly singled out were McDonalds' French fries, hamburgers, milkshakes, apple pies, and hot dogs, the latter containing 800 mg of salt per 85 g. The new FDA commissioner was sympathetic, announced that he would make this project one of his priorities, but indicated that he favoured voluntary restraints by industry rather than regulation. By way of compensation, meanwhile, those in danger of having their beer nuts desalted will be pleased with a Kaiser-Permanente study of 8000 patients that showed that moderate drinking protects against heart disease. There must surely be

Cook County Hospital, Chicago, Illinois, USA

GEORGE DUNEA, FRCP, FRCPED, attending physician

some alcohol in the elixir of life, for those taking two drinks a day lived longest. But the dose must be right, for teetotallers and those drinking more than three glasses a day had a 40-50% higher mortality rate. According to another study, heavy drinkers also run a higher risk of oral cancer, more so than people smoking two packets of cigarettes a day.

Meanwhile a recent Gallup Poll indicates that the percentage of people smoking in the United States has declined to an all-time low in 37 years, the change being most pronounced among young people and college graduates. Only 35% of people interviewed had smoked within the past week, compared with 43% in 1972; and eight out of ten adults had tried to stop smoking at some time, though one-third had relapsed. Despite a recent Louisiana study showing that nicotine has tranquillising effects and that smoking reduces aggression, other reports continue to emphasise that smokers have more strokes and heart attacks than non-smokers, and that even long-term smokers can substantially improve their life expectancy if they stop smoking. This year the American Medical Association, at its annual meeting, resolved to continue its antismoking policy and renewed its opposition to Federal subsidies for tobacco growers; and later, after considerable criticism, it acted to sell the tobacco stocks from one of its retirement fund portfolios. So far, anti-smoking programmes have relied largely on persuasion, despite a report to Congress emphasising that the warning signs on cigarette packages and advertisements are being largely ignored. In a small Illinois town, however, the council recently decreed that youngsters under the age of 18 would not be allowed to possess cigarettes, cigars, or tobacco. They also imposed a fine of \$500, thus ending a two years' controversy on whether to use tax money to provide smoking lounges for students at its high school.

Too much of everything

Elsewhere, meanwhile, students not only smoke too much, but also are too obese, eat too much fat, have excessive blood cholesterol concentrations, and show early signs of hypertension. These findings emerge from a current surveillance of 17 000 youngsters in 15 countries, indicating that Italian girls were the fattest, the Finns have the highest cholesterol levels, Kuwaiti boys and Yugoslav girls are the heaviest smokers, and the highest blood pressure levels were found in Finnish, French, Greek, Japanese, and Dutch children, in that order. But, according to a United States study of 20 000 children, obese children tend to have a higher IQ than children of average weight, though overfeeding will not make skinny children smarter. In fact the advantages of obesity are strictly limited, for fat people looking for jobs are also being discriminated against because of "morbid obesity," and some applicants weighing 160 kg have gone to court complaining of unfair victimisation. Some 600 000 Americans are reported to weigh at least twice as much as they should, despite a never-ending succession of popular (and no doubt lucrative) books on slimming diets; and so disappointing are the overall results of dieting that gastric stapling may offer the only hope of survival to a group that has up to 12-times increased chances of dying from heart disease, stroke, or diabetes.

Exercise, another seemingly important ingredient in the life-prolonging cocktail, not only increases aerobic work capacity but also makes us feel better by releasing endorphins and lipotropin, our endogenous opioids. It is particularly helpful in women taking oral contraceptive pills, who are at increased risk from thromboembolic disease complications, and it may act by increasing plasmin concentrations. Even facial exercises are

beneficial, and carried out for 15 minutes morning and evening will improve a person's appearance within four to six months, at least according to a beauty authority, who is at pains to emphasise that while everybody talks about physical fitness most people ignore their 52 facial muscles. Recommended exercises include blowing out one's cheeks, wrinkling one's forehead, or touching the nose with one's tongue, but privacy would appear to be essential. Men have better facial tone than women, seemingly because they move their faces while shaving—but men using electric shavers often end up with sags and wrinkles. Also, according to the beauty expert, moving one's mouth while talking does not provide enough facial exercise, not even for garrulous people. Furthermore, according to a study of 600 people in Baltimore, the use of automated blood pressure recording devices indicates that most people's blood pressure increases during talking by some 10 to 50%, even in deaf people using sign language.

Yet it might be better to be talking and hypertensive than alone and silent. A survey by Johns Hopkins researchers of 4000 widowed men showed that men aged 55 to 74 who had lost their wives had a 60% chance of dying sooner than men in the same age group who still had their wives, but that this trend could be reversed if the men remarried. Whether women are "genetically superior" at coping with stresses of different kinds, or whether some men simply fall apart when they don't have a wife to take care of them, is at present undecided. But in rabbits fed a 2% cholesterol diet the mere act of being petted daily reduced the area of fat infiltration in the aorta by 60%; and in patients discharged from coronary care units there was a significant difference in mortality (6% v 28%) between those patients who kept a pet in the house and those who did not. Vasectomies, however, do not appear to increase the incidence of heart disease, contrary to earlier reports, and according to a Seattle study of 6000 men, the men who had undergone vasectomies had slightly fewer heart attacks. This, however, should not detract from the merit of a current project at Vanderbilt University that is designed to develop a male contraceptive to be taken as nose drops or as a nasal spray.

Plastic hearts

One final approach to joining the centenarians club may be to replace one's wornout heart with a new one. This technique was first tried in the 'sixties, but was then largely abandoned during the 'seventies, except in a few hospitals, notably Stanford, which to date has done 217 transplants, with 82 survivors. Recently, interest in cardiac transplantation has revived, but the procedure remains expensive, the current cost being estimated at \$30 000-60 000, exclusive of surgeons' fees. In good hands the technical problems are not unsurmountable, and the management of rejection has been improved by cyclosporin A, antilymphocytic globulin, and the use of transvenous myocardial biopsy. In an even more ambitious project doctors at Stanford Medical Centre have recently performed heart-lung transplants on three patients, two of whom died but one of whom has remained well. In Texas a retired Dutch bus-driver lived for 54 hours with an implanted plastic heart before dying of "overwhelming complications"; and investigators at the University of Utah have now received permission from the Food and Drug Administration to implant a two-chambered air-driven pump, powered by an external compressor, into suitable subjects—suggesting that plastic may well be an essential ingredient of all future elixirs of eternal life.

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