Scientifically Speaking

Dialysis and transplant

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Washington, DC—In the early 1960s an anonymous committee of citizens regularly decided which patients with renal failure in and around Seattle, Washington, should receive haemodialysis. It was the stuff of drama: there were precious few dialysis machines and many more potential patients than could be accommodated. The technique was being refined and costs were staggeringly high for that period of medicine's technological development. At nearly \$40 000 a year for each patient on dialysis, the heroic aspects of prolonging useful lives every week took on awesome proportions. The Seattle committee was one answer to making those life-saving decisions. Many of the same decisions had to be made by the physicians in charge of the few other medical centres around the country with dialysis capabilities.

Hardly more than a decade later the technique of dialysis had become smoothly routine and more machines were in use, but the cost remained high. About 7000 Americans were being sustained in 1972 by their three-times-a-week dialysis sessions, but as many as three times that number were estimated to be barred from treatment by lack of machines and trained personnel. What could make the difference for those unfortunates was money to inspire an expansion of the nation's dialysis facilities by paying for the patients' treatment. On that premise, a US senator introduced legislation in 1972 to establish an End-Stage Renal Disease programme (ESRD), under which the federal government would pay most of the costs of dialysis or kidney transplantation. The legislation was swiftly and overwhelmingly enacted; it had that unbeatable combination of humanitarian grace and technological feasibility—all it took was money. And the estimates at the time were not of frighteningly large sums.

By the end of the first full year of the programme, however, already there were intimations of fiscal difficulties. The cost was more than \$170m, more than twice the estimated figure. Last year, ESRD cost almost \$1000m, four times the cost originally estimated for this stage of the programme. There are predictions for the future—probably sharpened by the experience thus far and perhaps exaggerated—of \$1500m in 1981 and \$2700m in 1984. A big reason for the rising costs, of course, is the steadily rising number of patients treated. Last year those patients numbered 48 000, which is almost eight times more than were being sustained when the programme was approved in 1972, but also is double the total number of beneficiaries that was predicted to exist back then. Two separate projections of the patient load at which ESRD will level off are 70 000 and 90 000, somewhere in the 1990s.

New breed of patient

The unexpectedly large number of patients is caused by the changed definition of "patient" after the government began paying to make up for their failed kidneys. When the closeted Seattle committee was making the hard decisions about who should be saved, the societal worth of a prospective beneficiary weighed heavily—sober, industrious breadwinners with young children had many points in their favour. The dialysis experts at that time intended their ministrations to support productive people who, aside from their kidney dysfunction, were able, willing, and indeed grateful to contribute to the proper workings of their communities.

With the ESRD programme in place, however, the patient population began to grow older, more feeble, and more afflicted with chronic diseases. The average patient age in 1972 was around 40, and fewer than one-fifth of them were over 50. Today the average age is over 50. Rehabilitation is simply not feasible for many beneficiaries under the ESRD programme today. They are too old or too chronically ill. In some instances the dialysis machine begins to take on the complexion of a respirator, sustaining life irrespective of flagging sentence.

The almost limitless spreading of the net for patients under ESRD also brought into the programme some who had never been part of the workforce, or who had held very low-paid jobs. For these the disability benefit payments, to which they are entitled by definition because of their eligibility for ESRD, are a further incentive not to pursue rehabilitation for purposes of rejoining the productive economy. For many among these members of the new breed of dialysis patients, their machine-dependence is a psychological burden rather than the joyous reprieve of the chosen patients in the earlier days. Physicians and others interviewed for an article in *Science* magazine on 2 May 1980 reported that an appreciable number of their dialysis patients were depressed, hypochondriacal, or even suicidal. Such patients have a suicide rate of seven times the national average, but so do other patients with substantially handicapping chronic disease who still retain the capacity to kill themselves.

Although ESRD was designed to be both a dialysis and a kidney transplantation programme, less than one-tenth of its beneficiaries receive transplants—fewer than 4400 patients in 1979. Well-matched live donors of kidneys are rare under ESRD: most of the transplants are from cadavers, and about half of those grafts are rejected within a year, which puts the patient back on dialysis. Transplantation, if an assured supply of kidneys could be arranged, conceivably could hold down the costs of ESRD. A successful operation has been estimated to cost as much as \$26 000, which is close to the cost of keeping one patient on dialysis for one year. The increasing number of old and chronically ill patients in ESRD, however, would probably not be fit for renal transplantation, so that option remains available to the same category of patients that do so well on dialysis—the young and the motivated.

A scarcity of kidneys for transplantation, and particularly

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kidneys from live donors, appears to be real in North America. But under the present set-up for ESRD coverage, the profusion of dialysis centres diminishes the urgency for surgical treatment anyway. Dr Samuel Kountz, then head of surgery at the State University of New York Downstate Medical Center in Brooklyn and a vigorous advocate of transplantation for kidney failure, criticised the ESRD programme in its early years for pushing a patient past the "golden moment" of immunologically optimal transplantation. Dialysis was seen gradually to enhance cellular immune reactions to a transplant.

Cost of living

As expected, the ESRD programme encouraged a great expansion of dialysis facilities. Perhaps less expected at the programme's birth in 1972, when virtually all dialysis was performed in hospitals, was that the expansion would create a veritable dialysis industry, with networks of centres treating outpatients on two shifts a day. These organisations are founded to make a profit—which is not the least bit unlawful—and the centres are often headed by nephrologists of good local repute. The biggest of these profit-making chains, National Medical Care, Inc, with headquarters in Boston, has over 100 outpatient dialysis centres across the country. Its centres handled more than 15% of all ESRD beneficiaries in 1979. Those and similar centres owned by other profit-making corporations performed dialysis for more than 40% of ESRD patients; hospital dialysis facilities took care of the rest. Although hospital outpatient dialysis generally is more costly than services in a commercial centre—no matter that the hospital usually is a not-for-profit institution—the centres attract some criticism precisely because they outspokenly make money by servicing patients who would die if the government were not paying for the service.

However life-prolonging the treatment, the ESRD pro-

gramme's costs are attracting increasing attention from government. Federal officials, anxious to keep medical care costs from leading the present surge of inflation, are reported to be considering ways to reduce payment for dialysis. One way to accomplish less costly dialysis is to have the patient perform it at home, usually with the help of a trained relative or friend. Advocates of home dialysis say that it can cost nearly one-third less than treatment at an outpatient facility. There are contentions that facilities such as the commercial centres do not encourage home treatment; they are not in the business of selling \$8000 machines so that the patient can do without their services. In fact, the government only recently altered its ESRD payment structure to make home dialysis more economically attractive to the patient. Only 10-12% of ESRD patients now perform dialysis at home; in 1972, almost 40% of dialysis patients were treated at home.

The economic track record of ESRD has sensitised government officials to other health care entitlement programmes that conceivably could develop the same runaway cost behaviour. The officials now think that they know one when they see one, and what they're seeing is heart transplantation.

In mid-June the government withdrew a tentative approval for heart transplantation, to be conducted at Stanford University and paid for by Medicare, which is the same federal programme that covers ESRD. Instead, the government will fund a two-year study of the consequences of heart transplantation. The study will cost \$2m, but that would cover only about 20 heart transplantations at today's prices. Stanford alone performs more than that each year. Medicare, the law states, covers for its beneficiaries all medical services deemed "reasonable and necessary." Those words, the government now indicates, henceforth will be defined in contexts beyond the merely medical.

No reprints of this article will be available from the author.

Is breath-holding during sleep physiologically normal in the elderly?

Occasional episodes of breath holding (or apnoea if there is absent airflow at the nose and mouth lasting for at least ten seconds) occurs in normal subjects at sleep onset and during rapid eye movement (REM) sleep and is not important. When there are more than 30 episodes overnight (by definition a sleep apnoea syndrome) or if apnoea occurs in other stages of sleep, the subject may then have insomnia, depression, loud snoring, or daytime sleepiness. Subjects with the sleep apnoea syndrome may develop congestive heart failure, cardiac arrhythmias, or even die during sleep.¹ When symptoms are disabling, treatment by tracheostomy or diaphragm pacing (depending on the type of apnoea) is effective. If the subject has the sleep apnoea syndrome without any underlying treatable condition (such as myxoedema or acromegaly) and is elderly with minimal symptoms, then reassurance is probably the kindest treatment. Subjects who have only a few episodes of apnoea overnight, however, should be told that this is completely normal and of no consequence.

¹ Guilleminault C, Van den Hoed J, Mitler MM. Clinical overview of the sleep apnea syndromes. In: Guilleminault C, Dement WC, eds. *Sleep apnea syndromes*. New York: Liss, 1978:1-12.

A middle-aged healthy woman has, during the past two years, noticed that within half an hour of an ordinary meal she always has to defecate. Is this indicative of any abnormality, and how might she be treated for this socially embarrassing bowel habit?

Any change of bowel habit must be regarded as an abnormality, though not necessarily indicative of structural disease. More information about symptoms is required. A change in consistency or colour of the stools may indicate structural disease in the colon or small intestine. Pain or loss of weight are clear indications for full investigation. The

minimum investigation, even if there are no additional complaints, would be abdominal palpation, digital rectal examination with a test for faecal occult blood, sigmoidoscopy, and estimation of haemoglobin and ESR. If all these give normal results then a trial of added dietary fibre supplemented by a hydrophilic colloid (methylcellulose, stercula, etc) and, perhaps, codeine phosphate would be justified. If the symptom was not relieved then double-contrast barium enema should be performed.

Is there any contraindication to using, for transplant purposes, the heart and kidneys of a woman who has been "on the pill?"

There is no contraindication to using the heart and kidneys for transplant purposes of a woman who has been on the "pill," unless she has disease of the heart or kidneys or infections or disseminated malignancy.

Is it true that the blood pressure of elderly patients with a long history of mild untreated hypertension sometimes drops spontaneously when they are in their 70s?

Yes, but only when they go into heart failure or their health begins to fail in other ways. I would not regard spontaneous lowering of the blood pressure in an old person as a good sign.

What is the treatment for a severe attack of urticaria in a 22-year-old woman who is about 10 weeks' pregnant? Is there any risk to the fetus of such an illness at this stage?

Antihistamines—for instance, promethazine—in sufficient dosage to control the symptoms would be the treatment of choice. There is no good evidence that such treatment will lead to fetal abnormalities.