

Radiotherapy's second setback

Promotion of a potentially dangerous treatment by a backdoor decision

The overtreatment with radiation of patients with cancer in Exeter has attracted wide attention (17 December, p 1566).¹ Less has been heard about a second episode in radiotherapy that may do as much harm and have wider implications. The story concerns the government's decision to spend £6m on a cyclotron that will be sited at St Thomas's Hospital in London. The machine will produce high energy neutrons and will be used to treat patients with cancer. This decision has been taken against the advice of cancer experts, many of whom think the treatment dangerous,² and it raises serious questions not only of patient safety but also of how the decision was made.

Fast neutrons were first used to treat cancer almost 50 years ago, but the treatment was abandoned because of unexpectedly severe late complications.³ Thirteen years ago, however, there was great excitement when dramatic results were produced in an interim report from a Medical Research Council trial at Hammersmith Hospital of the use of fast neutrons to treat advanced tumours of the head and neck.⁴ The randomised trial compared treatment by neutrons and photons: tumours regressed in 37 out of 52 patients treated with neutrons and in 16 out of 50 treated with photons; the tumour then recurred in nine of the patients treated with photons but in none of those treated with neutrons. There was no difference in mortality. Nobody wrote to dispute these findings, but after a report two years later showed continuing benefit from neutrons and only one case of local recurrence,⁵ Ross wrote questioning the fact that three fifths of the patients treated with photons were treated at a different hospital from those treated with neutrons.⁶ The authors provided data that the results were similar for those treated only at the original hospital, but by then the numbers were becoming very small.⁷

Because of the impressive results from Hammersmith the Medical Research Council installed a second cyclotron in Edinburgh in 1977. A series of prospective randomised trials were carried out on patients with cancers of the head and neck, bladder, rectum, and central nervous system, and, in the words of one of the team, "this work failed to show any benefit for neutron therapy compared with adequate conventional radiotherapy."⁸ In addition, "the side effects of therapy were in many cases more severe in the neutron treated group."⁸ The team who did the work were awarded the Röntgen prize of the British Institute of Radiology. When the Hammersmith work (which was published in the *BMJ*) is re-examined with the benefit of hindsight there are worries that the patients receiving photons were undertreated, that the end points of the trial (tumour regression) were imprecise, and that only one (unblinded) doctor examined the patients.

An editorial in the *Lancet* compared the Hammersmith and Edinburgh trials and examined studies from overseas, concluding that "it is difficult to be optimistic about the likely contribution of neutron therapy to the improved treatment of squamous carcinoma of the head and neck."⁹

What has also become clearer with time is the serious long term complications of treatment with neutrons. The Edinburgh group say that "the number of late complications is twice as high following neutron compared with photon therapy."¹⁰ In the light of conflicting results from the Hammersmith and from Edinburgh, the Medical Research Council set up a working party to review the data. This review showed—as expected—that patients treated with neutrons suffered more damage to skin and subcutaneous tissues.¹¹ More disturbingly, 10 out of 88 patients treated with neutrons developed severe damage to the laryngeal mucous membrane and died; in contrast, there were no deaths in the group treated with photons. In addition, one of the patients treated with neutrons at the Hammersmith died of severe morbidity to skin and subcutaneous tissue and another two died of radiation myelopathy. Overall, 10 of the 51 patients treated at the Hammersmith died of their treatment.

Two consultants who worked in the department of radiotherapy and oncology at the Hammersmith recently wrote to the *Independent* to say that the results of neutron treatment "were obtained at the expense of damage to normal tissues which most clinicians engaged in radiation therapy would consider unacceptable."¹² Alarming, they also point out that "there is now considerable doubt about the validity of the original reports."¹² A recent paper in the *British Journal of Radiology* has added to the evidence of damage: it describes the "unacceptable late tissue damage" that arose in patients with soft tissue sarcomas treated at Hammersmith Hospital with fast neutrons after wide excision.¹³

Not all the published evidence on treatment with neutrons is damning, and very recent evidence suggests that they may be effective in salivary tumours.¹⁴ Tumour clearance from the primary site was achieved in 11 out of 13 patients with inoperable and unresectable primary and recurrent malignant salivary gland tumours and in only four out of 12 treated with photons. Eight of the patients treated with neutrons and three of those treated with photons survived two years. The possibility also remains that treatment with high energy neutrons may be more effective and less dangerous than treatment with low energy neutrons. But high quality research on this question is currently being undertaken at the cyclotron unit at Clatterbridge on Merseyside. So there is no justification for starting another unit. If there is a place for treatment

with neutrons it is very limited. Such treatment can be offered at Clatterbridge. With the advanced care available at Clatterbridge there is no reason to think that any patient will come to harm.

The second side of this story is the way in which the decision to fund the cyclotron at St Thomas's was made. This government is interested in value for money, as it has made clear time and time again in its pronouncements on the funding of research and on the health service. The 1987 white paper on higher education talked of "difficult choices having to be made . . . the obligation to selectivity . . . [and] yielding much increased value for money."¹⁵ More colourfully, Robert Jackson, the junior minister with responsibility for higher education, recently told the Royal Society that the government wanted the "biggest bang for the buck" from its research.¹⁶ The government gives just the same messages of selectivity and value for money to the health service.

Yet in this case the government has without any outside consultation or peer review handed over £6m—twice its yearly budget for the whole of cancer research—for the cyclotron. It will also meet 60% of the running costs, which are likely to be very high. The United Kingdom Coordinating Committee on Cancer Research was not consulted about the decision, and its chairman, Sir Raymond Hoffenberg, wrote to the Prime Minister protesting. She proposed a meeting with the minister for health, which should have taken place last week but was cancelled at the last minute.

How could such a seemingly extraordinary decision be made? It has not escaped attention that one of the members of the Cyclotron Trust, which has lobbied for the machine, is Mr Richard Packard, the ophthalmologist who operated on Mrs

Thatcher in 1983. He might understandably use his influence with the Prime Minister to promote the project, but she of all people should be able to recognise a dangerous white elephant when she sees one. She recently told the Royal Society: "no nation has unlimited funds, and it will have even less if it wastes them. . . . So what projects to support? Politicians can't decide. . . ." Exactly, Mrs Thatcher. Turn again.

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A national ethics committee

To meet the growing public demand for candour

In 1984 the committee of inquiry of which I was chairman recommended as a matter of urgency that a statutory body should be set up to issue licences to those engaged in treating infertility, in "assisted reproduction," or in related research. Another recommendation was that an inspectorate should be established to ensure that work was not undertaken that had not been specifically licensed.¹

I still believe that this should be done. But things have moved on since the report was published, and I now think that such a licensing body should be a scientific subcommittee of a larger and more general body, perhaps a permanent royal commission with a rolling membership like that of the Royal Commission on Environmental Pollution. This body should be concerned with a wider range of ethical problems, arising in both medical practice and research.

The public has strong views about medical problems in a growing number of topics, the use of fetal material for treating Parkinson's disease being an obvious case and the possibilities of gene identification and therapy another. For the public to be interested in such issues is not mere inquisitiveness: it is the result of their being generally better educated than they used to be, with many more sources of information. And so, increasingly, and I believe rightly, they think that they ought not to be deceived or kept in the dark. All scientists and especially those concerned with medicine have to take this new attitude into account. There is a growing demand for candour.

This, then, is the main advantage of a national ethics

committee: it would be highly visible. Such a committee would have referred to it (or would ask to take up) new questions as they arose in practice or research. Hospital ethics committees as they exist at present are neither public enough nor sufficiently detached from the particular hospitals with which they are concerned. Their conclusions are not widely accessible to the public, neither are the considerations that led to the conclusions. And this is not surprising for they operate locally or regionally and there is no necessary consistency in their findings. They doubtless vary too in competence.

A national committee would be carefully selected to consist of people—some but not all would have a medical or biomedical background—who could understand the issues both of fact and of value. The chairman would be a "lay" person, perhaps a lawyer or a member of one of the now numerous university departments of medical ethics. They would not be experts: there is no such thing as an ethical expert. But they would be accustomed to weighing up arguments and to looking ahead, concerned with both principles and consequences.

The committee's membership would be announced; and it would be required to publish a yearly report, setting out its decisions and the reasons behind them. The public would no longer have to rely for information on brief often partial and scaremongering items in the press to form their opinions.

This consideration is the most important of all. The voice of an almost mediaeval obscurantism is increasingly to be heard—a hostility to science based on vague thoughts that