FINAL WORD

by Henry I. Miller, M.D.

GENE THERAPY: NOT TO BE FEARED OR OVER-REGULATED

Gene therapy, the introduction of a cloned, purified gene (or a gene modulator) into the cells of a human patient to correct a genetic defect, is in danger of becoming one of those feared buzzwords that evoke the "vague fears and horrible imaginings" of Orwell. There is already evidence of this phenomenon. At the instigation of a multidenominational group of clergymen, the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research conducted a two-year study of the social and ethical issues of genetic engineering with human beings, which recently culminated in a lengthy document somewhat obscurely entitled "Splicing Life."

An examination of the major conclusions of "Splicing Life" can be instructive. First, there are a few truisms: concerns about remaking human beings into a Frankenstein's monster have been exaggerated; genetic engineering techniques are "advancing very rapidly" and "are already demonstrating their great potential value for human well-being;" "the Commission is not persuaded that the scientific procedures in question are inherently inappropriate for human use." While true, this is hardly the stuff of world-class bioethics analysis.

Carping aside, the report does go on to discuss in a scholarly way some of the weighty issues, including man "playing God," societal obligations to protect or enhance the health of the citizenry, the relationship of genetic malleability to the sense of personal identity, and the meaning of being human. As one might expect, issues of such moment lend themselves better to discussion and expostulation than to solution, and this treatise is no exception. The Commission concludes, rightly in my view, that in the rapid development of gene splicing there is not the fundamental danger to world safety or to human values that concerned the clergymen. Rather, the Commission defines as the central issue: by what standards and toward what objectives should the great new powers of human genetic engineering be guided?

The greatest potential impact of the Commission's report lies, I think, in how it attempts to answer the above question. Its answer, alas, is that we require a new body to regulate and promulgate such standards and objectives. It details the necessary characteristics of such an oversight group: first, it should regard education of both the scientific community and public as a primary responsibility; second, the group should have roles both of general oversight and of leadership within the Federal government and should exercise "action-forcing power," formal rule-making procedures; third, the body should be capable of leading, as well as reflecting, public thinking on issues before it; fourth, it should strive to operate on scientifically sound premises; and fifth, it should treat in a coherent way all of the issues raised by genetic engineering, including "laboratory and industrial safety, environmental hazards, agricultural and commercial opportunities and pitfalls, international ramifications, biomedical benefits and risks, and social and ethical implications." In short, such a regulatory body should do just about everything but find us a good five-cent cigar.

The Commission report then provides several alternatives for how one might formulate such a regulatory body. There could be a redesigned RAC (Recombinant DNA Advisory Committee of the NIH), altered to provide broader representation at the expense of scientific expertise; resurrection of the Federal Interagency Advisory Committee on Recombinant DNA Research, now inactive for several years; a new Genetic Engineering Commission, with a majority of non-scientists; finally, and perhaps a bit disingenuously, leaving such gargantuan regulatory responsibility to the Commission itself.

Professor Bernard Davis of Harvard Medical School, in a recent editorial in Science, suggested that such a special continuing commission on genetic engineering might be tempted to become a busybody, imposing Federal regulations on activities that are better regulated on the local scene, but that some mechanism for continuing surveillance could have real value in protecting the public from unwarranted anxiety. Professor Davis is correct on both points.

However, I submit that his second condition is largely met. Gene therapy can be regulated effectively and adequately by mechanisms already in place (several of which act locally). These include local Institutional Review Boards, with experience in both experimental medical therapies and the ethical dilemmas attendant to them; the local Institutional Biosafety Committees mandated by the NIH Guidelines on Recombinant DNA Research; and the RAC, which, as presently constituted, boasts a balance among scientists, physicians, attorneys, and lay people. Equally important will be the array of Federal agencies with mandates to regulate various aspects of the products and processes that comprise human gene therapy. For example, the Food and Drug Administration will probably regulate DNA as a biological product, ensuring that experimental protocols are scientifically appropriate and based on a sound rationale, that the appropriate purity and identity of the DNA employed are demonstrated, and that informed consent is obtained from patients. Other components of the Department of Health and Human Services ensure that patients' rights as experimental subjects are not compromised.

Thus a new regulatory entity is arguably neither necessary nor sufficient, because regulation of the products and process of human gene therapy is already in place, and much of the regulatory mandate lies within existing agencies. It would be particularly unfortunate if progress in this area were impeded by over-regulation. As Professor Theodore Friedmann of the University of California, San Diego, School of Medicine, testified recently during Congressional hearings, "the development of methods for genetic treatment for human disease is logically consistent, inevitable, and necessary to fill major gaps in the effectiveness of currently available therapies."

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