Medicine by John Grauerholz, M.D.

Artificial heart progress continues

Despite the successes of improved artificial-heart surgery, attacks continue on the "economics" of the treatment.

In spite of the carping of Colorado Gov. Richard Lamm, who is upset about it, the word is out: The artificial heart can extend the life of people dying of heart disease. Humana Heart Institute, which had previously resisted making that claim, has now done so in the wake of the success of their third artificial-heart implant.

The operation on 58-year-old Murray Haydon took only 3½ hours, 3 hours less than the operation on William Schroeder and 4½ hours less than that on Barney Clark, who lived 112 days with his Jarvik-7 heart. Haydon's rapid recovery and excellent post-operative course can be at least in part attributed to the shorter period of surgery and to the experience acquired by the health-care team in the care of the two previous implant patients.

The Clark implant provided experience for the medical and nursing staff in how to care for a heart-implant patient after the operation. William Schroeder's implant built on that experience and extended to training the family in the maintenance of the drive units. Thus Haydon's recovery is more indicative of what will occur as the operation becomes more common and operative and post-operative techniques are refined.

Dr. Robert Jarvik, developer of the Jarvik-7 heart, thinks that, in the Haydon case, artificial heart technology has passed the experimental stage. Commenting on the case, he said "In this patient, this is a treatment. This is not a medical experiment. What's at stake [in the Haydon transplant] is his whole life."

The most likely candidates for an artificial heart implant, according to Jarvik, would be victims of massive heart attacks who cannot wait for transplants. These tend to be younger people, in their 40s to 50s and frequently without other significant disease, so that the life-prolonging potential of cardiac implants is quite significant. Haydon, at 58, and Schroeder, at 53, are typical of this type of patient.

After three implants the following conclusions have been established:

The artificial heart can extend the lives of people dying of heart disease. The findings of numerous animal experiments, that it is possible to survive and gain strength after a heart implant, are now confirmed in humans. Both Clark and Schroeder have lived longer than they would have without the implants, and Schroeder is now recovering rapidly from a post-operative stroke, compounded by a bout of influenza.

The artificial heart has the ability to react to a patient's activity by increasing blood flow. While the heart beat is set at a fixed rate, increased activity causes more blood to flow back to the heart, which then pumps out the increased volume with each beat. It is this ability to increase the quantity of blood ejected with each heartbeat, known as the stroke volume, which enables the heart to increase the volume of blood flow to the body, without increasing the pulse rate as would occur in a regular heart.

The portable power unit, the Heimes driver system, is very efficient, giving the patient good mobility. This is a significant development for the future of the artificial heart as a treatment for heart disease and not merely an interesting medical experiment.

As the scientific developments in the program become more manifest, the attacks on it are increasingly focusing on so-called economic criteria. In addition to Governor Lamm, who seems determined to balance the budget on the bodies of those who have the termerity to become old or seriously ill, Arthur Caplan, associate director of the Hastings Institute, is concerned that "the economic impact of the [artificial heart] device, if it proves successful, could be very large, running into the billions of dollars."

Ironically, a planned review of the medical ethics of the Schroeder implant by the National Academy of Sciences has been canceled due to lack of funds. Dr. Frederick Robbins, president of the Academy's Institute of Medicine, said that the academy was unable to obtain the public or private money to finance the review.

Dr. William DeVries, the surgeon who performed the three implants, has called for a national debate on the ethics of the program. While there are certain problems inherent in such a debate, it would serve as an opportunity to confront the underlying premises of the "cost containment" and "cost-benefit analysis" advocates of reduced medical care for the "post-industrial" United States. The result of such a debate could well be a prognosis for the survival of the idea of progress embedded in Judeo-Christian civilization and the United States Constitution.