

Human Heart of the Pig

Mircea CİNTEZA, MD, PhD^{a, b}

^aDepartment of Cardiology, Emergency University Hospital, Bucharest, Romania
^b“Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania



On our way of medicine, we have recently seemed to overcome another landmark. A heart prepared into a pig body was transplanted to a human being (1).

David Bennett Sr, 57, died two months after the unprecedented transplant surgery. Many media publications commented on that subject.

Maryland medical team said they would send their conclusion to a scientific journal later on.

The patient had been considered unsuitable for human transplantation – or for a final left ventricular assist device – by the healthcare team.

The pig was prepared to lose a carbohydrate molecule which favoured organ rejection. The patient was treated with a strong new drug to avoid rejection. US Food and Drug Administration (FDA) approved the procedures.

After several weeks of doing well, the patient deteriorated. It seemed that his death was due to rejection problems.

He lived two months with a pig heart. We have to remember that the first human with a transplanted human heart, Louis Washkansky, had lived for 18 days. Today, about 3500 human heart transplants are performed each year, and the medium survival rate is 15 years.

Xenografts could be the solution for many severe illnesses, and FDA has Xenotransplantation Guidances regarding kidney transplant, pancreatic islets transplant in diabetes or skin xenografts for burns. Each domain is in different stages of development (2, 3). Tissue engineering of these compounds is already a world of science (4).

David Bennett Sr died. But he and his medical team opened an impressive gate to life.

Post Scriptum

It is so long since some people do not have a human heart inside their body. Or soul.

Maybe it would be better to have both of them from a gentle pig. □

REFERENCES

1. **Reardon S.** First pig-to-human heart transplant: what can scientists learn? *Nature* 2022;601:305-306. doi: <https://doi.org/10.1038/d41586-022-00111-9>.
2. **Dolgin E.** Pig kidney transplant obscures value of engineered animals. *Science* 2021;374:668-669. doi: 10.1126/science.acx9536.
3. **U.S. Department of Health and Human Services Food and Drug Administration Center for Biologics Evaluation and Research.** April 2003. Updated December 2016. Source Animal, Product, Preclinical, and Clinical Issues Concerning the Use of Xenotransplantation Products in Humans. Guidance for Industry.
4. **Elisseeff J, Badylk SF, Boeke JD.** Immune and Genome Engineering as the Future of Transplantable Tissue. *N Engl J Med* 2021;385:2451-2462. doi: 10.1056/NEJMra1913421.

Address for correspondence:

Mircea Cinteza, MD, PhD

Department of Cardiology, Emergency University Hospital, 169 Independentei Avenue, District 5, Bucharest, Romania

Email: mirceacinteza@gmail.com

Article received and accepted for publication on the 25th of March 2022