Late Delivery: IVF Pioneer Wins Nobel Prize

BY CHRISTINE KILGORE

For years, the Nobel Committee for Physiology or Medicine passed over in vitro fertilization.

Its members were urged by obstetricians and gynecologists, among others, to award the Nobel Prize to British biologist Robert G. Edwards, Ph.D., and to recognize IVF for its reach and impact. Yet for years – for reasons that are discussed but may never be fully detailed – the committee made other choices, leaving in vitro fertilization and its main visionary to continue waiting in the wings.

Last month, after Dr. Edwards' wife was informed that her 85-year-old husband was being awarded the Nobel Prize for the decades of work he spent developing IVF, committee members explained that the time was right. And infertility specialists and other ob.gyns. felt vindicated.

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Dr. Robert G. Edwards in 1998 with 'test-tube babies' Jack and Sophie Emery.

"One to two percent of all newborns are conceived through IVF," said Prof. Göran K. Hansson, secretary of the committee, in announcing the decision. "IVF children are as healthy as other children … and many of the IVF children born in the 1980s now have children of their own, conceived without the help of IVF."

Reproductive endocrinologists who are now active leaders in their field have called the award "gratifying," "exciting," and "long overdue" at a time when some 4 million babies worldwide have been conceived with IVF. For many of them, the 1978 birth in England of Louise Brown, the first child conceived through IVF, either drew them into the specialty, or propelled them forward with new or renewed drive.

They practiced amidst a steady stream of ethical and moral questions, and watched the technology go from one that, in many quarters, including some within their own profession, was vilified and considered a threat to humanity, to one that – while not without controversy, cost, and complexity – is now widely accepted as a key treatment for infertility.

They experienced a succession of developments that improved the success rates of IVF – from the first birth of a baby conceived with a donated egg in 1983 and the first successful use of a frozen embryo in 1984, to the development of preimplantation genetics diagnosis in 1990 and the development of intracytoplasmic sperm injection in 1991.

"IVF has enabled us to dissect the human reproductive processes in a way we weren't able to do in the past. … There are very few things in medicine that have changed not only how we look at reproduction but life itself," said Dr. Zev Rosenwaks, director of the Ronald O. Perelman and Claudia Cohen Center for Reproductive Medicine at Cornell University and the New York Presbyterian Hospital, both in New York.

"From a social, ethical, human, medical, and scientific point of view," the award was well deserved and long overdue, he said.

In comments made after the Nobel Prize announcement, Prof. Christer Höög, a member of the Nobel Committee for Physiology or Medicine, said that the prize was given to Dr. Edwards alone because "he had the vision [for IVF]. Others assisted … but it was really Dr. Edwards who saw the vision and made it happen."

Some believe, however, that if his collaborator Dr. Patrick Steptoe were alive (he died in 1988), he might have shared the prize. Dr. Edwards, now a professor emeritus at the University of Cambridge, England, had called Dr. Steptoe to ask him for his help in 1968, after reading of his work with laparoscopy and having come to appreciate the

fragility of in vitro–matured oocytes.

"Then the world's master of this method, he could easily aspirate [matured] oocytes from their follicles. We teamed up for IVF and discussed in detail the safety of our proposed procedures, and the underlying ethics," Dr. Edwards wrote in 2001 (Nat. Med. 2001;7:1091-4). "We agreed to work together as equals, pursue our work carefully, and stop if any danger emerged to patients or children, but not for vague religious or political reasons. We stayed together for 20 years, until his death. I reckon he taught me medicine."

Dr. Alan H. DeCherney, editor in chief of the journal Fertility and Sterility, heard Dr. Steptoe present their experience with the first IVF baby at a conference in Venice, Italy, held shortly after Louise Brown's birth. "I thought, this is the future, and when I returned to Yale – where I was at the time – we immediately starting putting together an IVF program."

In the meantime, the first birth outside England of a child conceived through IVF was reported in 1980 in Australia. In 1981, the first IVF baby in the United States, Elizabeth Carr, was born in Norfolk, Va. By the end of 1983, 150 IVF babies had been born worldwide. Through continual improvements in clinical IVF, the number of live births worldwide soared, to 1 million in 2000.

The problem was, with the focus on raising pregnancy rates and the simultaneous improvements in technique, the rate of multiple pregnancies as a result of IVF skyrocketed. Reproductive specialty organizations set standards for maximal embryo transfers. The efforts have paid off in terms of triplet and higher-order multiple births, but twin pregnancies continue to rise.

Fertility specialists still feel the tug between the need to control the multiple birth rate on one hand, and the principle of patient autonomy and free enterprise on the other, said Dr. Bradley J. Van Voorhis, who directs the IVF program at the University of Iowa Hospitals and Clinics in Iowa City.

To resolve this dilemma, many in the field are pinning their hopes on embryo selection – finding the healthiest, most viable embryos, those most likely to implant. "Without question," said Dr. Rosenwaks, "identifying a viable embryo is one of the greatest challenges for IVF in the future." ■