WŐLNER, ERNST

Membru de Onoare, AUSTRIA

Prof. univ. dr.

Born 29.12.1939, Wien

Dr. Ernst Wölner, head of the Department of *Cardiothoracic Surgery* at the University Hospital of Vienna, talked to Emma Wilkinson, BSc, MA, about his life and work. In 1956, the young Ernst Wolner was in his penultimate year of secondary school and planning to study law. Then in October that year, the Hungarian Revolution against the communist government displaced refugees into neighbouring Austria. A chance visit to the city hospital to visit a family member opened Dr. Wölner's eyes to the plight of the refugees and led him to change his mind. He decided to pin his career hopes on medicine. "It was a Sunday afternoon, and my mother asked me to visit a female relative", Dr. Wölner recalled. "It was in the days before easy access to telephones, and when I got to the hospital, my relative had been discharged on the Friday before. So I had some time on my hands and realised from the refugees I saw that if I became a lawyer and I ever had to move to another country, I wouldn't be able to practice. But with medicine, I could practice anywhere - in every country, on every continent." As it turned out, this foresight was not required, as Dr. Wolner, who was born just after the start of World War II, obtained his degree from medical school in Vienna, trained in the Department of Surgery at the University Hospital, and became professor of surgery there in 1981. In 1967, there was a new chief of surgery, Jan Navratil, MD, who was very dedicated to research, particularly cardiac research, and he said to him, "You are my man for the programme on assisted circulation." So in 1968 he started doing research on the intraaortic balloon pump (IABP). This was the first department in Europe to implant such a device in a human. For Dr. Wölner, this was the start of a very long and distinguished career developing *cardiac assist devices*. This seemed a logical step, as in the two years immediately after medical school he carried out research on coronary flow and heart function in the university's departments of anatomy and pharmacology.

Dr. Navratil, who encouraged his career in artificial cardiac devices, was a real mentor, but Dr. Wölner says he has been motivated by all those who work with him in the *Department of Cardiothoracic Surgery*. "By the age of 41, I was the head of the department, and my coworkers inspired me. What I can really say is that the department has a really broad spectrum - 50% of what we do has always been innovation, implementing new technologies, and we have done thousands of heart transplants over the years."

IABP transplants were just the beginning of the Vienna programme on assisted circulation. In the 1970s, the team was testing left ventricular assist devices in calves, and in 1986 they carried out an artificial heart bridge to transplant operation in a human. "I wrote a lot of papers speculating how it would be in the early 1990s", Dr. Wölner said. "With the exception of energy transfer, it has all been realised. At the beginning of the programme, nuclear energy was a real high point, and we were thinking that all the problems of the power source with mechanical devices would be solved by a nuclearpowered battery in the body, which would provide power for the whole life of the device." He believes that developing an energy source that can power cardiac assist devices from within the body is one of the biggest challenges in the field.

In the 1980s, Dr. Wölner and his colleagues developed the *Vienna Artificial Heart*, a pulsatile artificial ventricle, which was successfully used as a total artificial heart and left ventricular assist device and provided a bridge to transplant for patients with terminal heart failure. However, funding difficulties meant the device never became available on a large scale.

"This was 20 years ago, and we were unable to fund a company to put it into production, so now it's a device for our museum. The minimum investment for this sort of project is $50 million, and this is one of

the problems in Europe. In the US they have invested much more in their future." Currently, Dr. Wölner is working with rotary pumps, which, unlike their pulsatile counterparts, maintain continuous blood flow through the heart. We were very lucky because we were able to work in close cooperation with Michael E. DeBakey, MD, director of the *DeBakey Heart Center*, Baylor College of Medicine, Houston, Texas. "We are now a leading centre within this field. I believe rotary pumps have an advantage over pulsatile devices. They are small, and they need less energy, so perhaps it will be easier in the future to have power sources in the body so you won't have to have wires protruding out of the skin."

When asked about the part of his career he is most proud of, Dr. Wölner said it was the founding of the *European Association of Cardio-Thoracic Surgeons* (EACTS) with his colleague Francis Fontan, MD. Dr. Wölner was president of the organisation in 1999. It has gone from strength to strength since its first meeting in 1987, and now an EACTS conference can hope to attract 5000 delegates. He also mentioned modestly that he was honoured with the *European Society for Artificial Organs* first award for his outstanding contribution to artificial organs research in 2002. He advises the minister on how health in Austria should be financed. For example, if there is a new therapeutic procedure, or an issue such as vaccination, or how the health system should deal with obstetrics. He has accumulated a lot of general information. He will retire in two years, and by then he will have done 45 years of surgery. He added, I will still use his knowledge in public health, though.

References: http://circ.ahajournals.org/content/114/9/f133.full.pdf, http://www.aeiou.at/aeiou.encyclop.w/w931686.htm.

Studium und wissenschaftliche Karriere in Wien: Ab 1968 Leiter der Arbeitsgruppe Assistierte Zirkulation - KünstlichesHerz an der II. Chirurgischen Universitätsklinik in Wien, seit 1981 Universitätsprofessor für Chirurgie in Wien, seit 1982 Leiter der *L.-Boltzmann-Instituts für Herzchirurgische Forschung*, 1981-93 Vorstand der II. Chirurg. Universitätsklinik in Wien, seit 1994 Abteilungsleiter für Herz-Thoraxchirurgie an der Universitätsklinik für Chirurgie in Wien. Trat mit vielen Publikationen als Herzspezialist von internationaler Bedeutung hervor; zahlreiche Auszeichnungen.