

Carl-David Agardh, 1946–2013

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Professor Carl-David Agardh, MD, PhD, died unexpectedly on 2 December 2013 at the age of 67. After years of caring for patients and performing a multitude of administrative duties, he was in the process of retiring from clinical service to spend more time with his family and pursuing his research interests.

Carl-David grew up in Stockholm and spent his summers on Bohus-Malmön, an island on the west coast of Sweden, where he met Elisabet, his wife to be. Their family would grow to four children and 11 grandchildren. Carl-David and

Elisabet both became professors at Lund University, Carl-David in Medicine and Endocrinology and Elisabet in Ophthalmology. After completing his secondary education in Stockholm and the mandatory military training in the Swedish Navy, his first experience of university education was at The Stockholm School of Economics. However, business was not Carl-David's cup of tea; the nearby Karolinska Institute was more attractive. Carl-David obtained his Bachelor of Science degree in Medicine in 1970 and became a Doctor of Medicine in 1974.

In 1974 he and Elisabet moved south to Lund, and at Lund University Carl-David continued his clinical training and began research with Professor Bo Siesjö, an internationally renowned pioneer in experimental stroke research. This experimental brain research focused on questions related to the possibility that hypoglycaemia induced distinct brain injuries [1]. Carl-David defended his medical thesis in 1981 and received the first Holger Crafoord award for best thesis at Lund University. He became a specialist in internal medicine in 1982 and in endocrinology in 1992. A prestigious Fogarty Award made it possible for him and the entire family to spend 1982–1983 in Bethesda, Maryland, USA, where Carl-David worked as a research associate at the Diabetes Branch of the National Institute of Arthritis, Diabetes, Digestive and Kidney Disease at the National Institutes of Health. These years with Jesse Roth and his team at the cutting edge of insulin receptor research proved to be formative and productive [2].

Carl-David's leadership abilities and organisational talent allowed him to move through the ranks to become Chief of the Diabetes Section in the Department of Internal Medicine, (1984–1995), Deputy Chief of Medicine (1990–1995) and Deputy Chief of Staff (1995–1997), all at Lund University Hospital. In 1998, after spending a semester as Visiting Associate Professor at Harvard Medical School and the Joslin Center in Boston, he moved to the University Hospital in Malmö, where he was not only appointed

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professor but also Medical Director of the University Hospital MAS (UMAS) in Malmö. He would remain in the latter position until 2009, the longest serving Medical Director to date, resulting in a continuous advance in clinical care excellence and research.

In his work of seeing patients, training diabetologists and facilitating translational research before the term was invented, Carl-David was a visionary and enabler. He foresaw the diabetes epidemic. In 1984 he took the initiative of making diabetology a speciality in the Swedish Society of Internal Medicine. A few years later, in 1987, he established the Swedish Association of Diabetology. Although questioned initially, the Swedish Association of Diabetology has grown into an indispensable society open to all professions within the field of diabetes care and research.

Carl-David showed an extraordinary talent for combining patient care with research. The patient was always at the centre, which is reflected in his list of more than 200 original publications. Together with his wife Elisabet, he championed frontline research in diabetic retinopathy and continued to contribute to the annual EASD meeting in general but in particular to the EASDec, the study group of the EASD with special responsibility for the study of the eye complications of diabetes. After contributing to this group for several years, Carl-David served as the EASDec president from 2000 to 2003.

His understanding of the growing problem of diabetes and the ensuing epidemic and lack of quality control in the care for diabetes patients made Carl-David the ideal Swedish representative to participate in the expert committee that produced the St Vincent declaration in 1989 [3]. General goals and standards of diabetes care were agreed on, and the development of an integrated information system to monitor diabetes care was of particular importance to Carl-David. Together with Professor Christian Berne at Uppsala University, he established the Swedish National Diabetes Registry (NDR) in 1996. Also in 1996, Carl-David was instrumental in establishing the national guidelines for the care and treatment of patients with diabetes [4]. Among other things, the national guidelines stress the importance of the diabetes nurse both in primary and tertiary care, and emphasize the need for regional centres to provide access to information and education and the promote research into treatment. Another important aspect is that the National Diabetes Register and the guidelines foster the influence of patient organisations at the local level, which has resulted in a significant impact on the quality of care for the individual patient. This type of unselfish work is characteristic of Carl-David's contribution towards improving the life of the individual diabetes patient with evidence-based medicine.

Through his role as Medical Director Carl-David helped diabetes research to flourish both locally and across Sweden

as a whole. His administrative skills and perseverance made it possible to establish the Clinical Research Center (CRC) at the University Hospital MAS (nowadays University Hospital SUS) in Malmö. He witnessed the development of the CRC into a leading diabetes research centre. Until his untimely death he served on the board, supporting the development and growth of the CRC.

Carl-David and Elisabet have made major contributions to the understanding of retinopathy. Of his more than 200 publications, Carl-David co-authored more than 70 with Elisabet. Carl-David had a flair for translational studies, and while many investigations were experimental [5], there were key clinical studies of the genetics and the aetiopathogenesis of retinopathy [6]. He was the study coordinator and lead author on the first clinical trial to test whether alum-formulated GAD65 would preserve residual beta cell function in patients with latent autoimmune diabetes of adults (LADA) [7].

At the time of his death, Carl-David was planning novel approaches to come to grips with the question as to whether autoantibodies against pericytes would contribute to retinopathy [8]. Many of his studies were international collaborations and Carl-David remained a trusty collaborator with many colleagues throughout the world.

Diabetes care and research has lost a visionary leader whose goal in life was to improve the life of the diabetic patient and to foster research to curb the diabetes epidemic.

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