Brief historical note on Juha Hernesniemi

Breve nota histórica sobre Juha Hernesniemi

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ABSTRACT

Juha Hernesniemi (1947-) is a world-famous Finnish neurosurgeon for countless achievements and innovations in medical science and education. This paper describes a brief historical note and its contributions to global neurosurgery development. Juha Hernesniemi is one of the 56 most important neurosurgeons in the world. He has a big influence in brain tumor surgery, skull base surgery, and, specially, in vascular neurosurgery. Moreover, Hernesniemi is an important name regarding active treatment instead of a conservative approach for high-risk patients.

Keywords: Hernesniemi; Juha Hernesniemi; Historical note; Bibliography

RESUMO

Juha Hernesniemi (1947-) é um neurocirurgião finlandês mundialmente conhecido por diversas conquistas e inovações na prática clínica e educacional na Medicina. Esse artigo discorre sobre sua biografia e suas contribuições para o desenvolvimento global da neurocirurgia. Juha Hernesniemi é um dos 56 neurocirurgiões mais importantes do mundo na atualidade. Possui grande influência nas cirurgias de tumor, base de crânio e especialmente na cirurgia vascular. Além disso, Hernesniemi é um importante nome para o tratamento mais ativo, em vez de conservador, para pacientes de alto risco.

Palavras-Chave: Hernesniemi; Juha Hernesniemi; Nota histórica; Bibliografia

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Received Jan 4, 2022
Corrected Jan 19, 2022
Accepted Jan 20, 2022
Juha Hernesniemi (Figure 1) was born on October 18, 1947, in Kannus, a village in Nieminen, Finland. He is married and has three children and three grandchildren.

In 1973, he was graduated in Medicine from the University of Zurich, Switzerland. From 1973 to 1979 he was a resident of psychiatry, internal medicine, surgery, and neurosurgery in Finland. In 1976, he operated his first aneurysm. From 1980 to 1997 he worked at Kuopio University as a senior doctor. In 1982 he went to Yaşargil's place in Zurich and, after that visit, he became the first in Finland to use a counterbalanced microscope with a mouth switch in 1983. In 1991, endovascular treatment of intracranial aneurysms began in Finland. In 1997 he took over the position of professor and director of the Neurosurgery Department at the Central Hospital of Helsinki University in Finland, where he stayed until 2015.

His main interests are vascular neurosurgery, skull base surgery, and brain tumors. More than 16,000 surgeries was performed in his career, about a quarter of which are brain tumors. One of its hallmark is surgery in constant motion, in which the neurosurgeon and the operating microscope move throughout the operation, reducing it to a quarter of the normal time. There are more than 6,000 brain aneurysm operations, almost all operated under a microscope and more than 3,000 brain tumor operations in his curriculum.

Juha Hernesniemi is one of those rare individuals capable of achieving world-class excellence and achievements in all three pillars of Medical Sciences: Clinical Practice, Research, and Teaching.

Hernesniemi gained fame at the Kuopio Neurosurgery between 1980 and 1997 for his exceptional work in the field of microsurgery, always analyzing, modifying, standardizing, and repeating its procedures. This way, he had completed highly complex surgeries relatively quickly. However, this was not achieved with simplified methods, but with constant training. His first feat of genius was, therefore, to minimize micro-neurosurgery with the aid of a Contraves Zeiss microscope, laying the foundations for what in the future would become world-widely known as Helsinki neurosurgery. He has always defended the philosophy of a simple, clean, and fast neurosurgery, which is so present in his words for everyone to be inspired: "Simple and clean while preserving normal anatomy. To be clean is to be quick and effective. Surgery is art – you should be one of those artists."

His second great genius feature was to realize that live presence and open-access video are far superior ways to display his minimalist art. Helsinki's neurosurgery, then, is planned and prepared to the smallest detail, including the organization of the operating room: during Hernesniemi's art, everything is done to ensure that his co-workers understand the next steps of the operation.

Moreover, he was responsible for establishing an aneurysm database in eastern Finland. In 1999, he joined the advisory boards of the Neurosurgery and Surgical Neurology magazines, having been an associate editor of Surgical Neurology since 2008. He is a founding member of the World Academy of Neurological Surgeons and a member of the Finnish Neurological Society. He has been invited by international stars to be part of doctoral dissertation boards for neurosurgery in Helsinki.

Also, he sought development in the areas of teaching and research. Initially, he thought about writing medical books but saw that "the pen was more difficult than the scalpel", so he realized that his work could also be disseminated through videos and live observation. Thus, he created Hernesniemi Fellows, an annual live microsurgery demonstration course in Helsinki that has accepted more than 3,000 visitors and 80 fellows who, together with him, have had the opportunity to register, observe and discuss his procedures. Many of these students were accepted...
even though they presented a notable instability in the language and were able to dedicate time to learning in libraries or editing intraoperative videos. The willingness of thousands of people around the world to go to Helsinki to see Juha Hernesniemi's brilliant performance attests to the greatness of the procedures performed by him, which made his work a unique art.

He has given more than 1000 lectures, had more than 600 publications collected, and won several awards. The prestigious World Neurosurgery magazine has selected Hernesniemi as one of the 56 most important neurosurgeons in the world. He has reached more than 500 articles included on PubMed. In addition, much of his work has been gathered in more than 1100 carefully edited videos, some in short versions and others in longer versions, which demonstrate much of the surgical techniques he has learned in his career. They are masterpieces of surgery done by a master surgeon. Helsinki Microneurosurgery Basics and Tricks, written by Professor Juha in collaboration with his colleagues, has influenced many neurosurgeons around the world.

Hernesniemi has always been intensely involved in daily scientific work. Known for being the fastest neurosurgeon in the world, he directly influenced the rhythms of surgery, replacing the policy of more conservative treatment with a more active attitude in an attempt to save critical patients, which often became successful.

The Neurosurgery Department at the Central Hospital of the Helsinki University, Finland, is a sacred place that any neurosurgeon, interested in cranial neurosurgery (mainly vascular neurosurgery), has to visit. Hernesniemi and his team can dissect a surgical operation (especially intracranial aneurysms – AIC’s) in the different individual components, eliminating any waste and obtaining exceptional results. Hernesniemi conducts neurosurgery like a real maestro. The emphasis on teamwork with high precision allows the procedures to be as efficient and safe for patients as possible, increasing the chances of better outcomes.

In 2015, at the age of 68, the legal retirement age limit in Finland, he had retired from Hospital Töölö. So he went abroad looking for his home and for what he is addicted to: the operating room. As long as he is well and able to operate, he does not intend to stop. Hernesniemi (Figure 2) seeks to remain in standing position during all surgeries, except for the bypass ones, and he values good physical conditioning as an important characteristic for a neurosurgeon.

For Hernesniemi, hospitals are places where you can directly see the heart of a society. During his stay in Nepal in 2017, where he worked at the Nobel Institute for Neuroscience, the poverty of the place made him reflect on the importance of his work. “What's the use of neurosurgery if patients can't pay for it?”; “Confronting death every day in your work is a great challenge that is never left behind”;

“The older you get; the more these distant flaws weigh”;

“Whoever is not afraid of surgery; is in the wrong area or does not speak the truth”; “I never understood life or death; as everything happens. After all; we were born here without understanding and we died with a question mark on our lips”.

There are three things that belong to a good neurosurgeon. You have to be a good doctor, a good neurosurgeon, and a good person –- a good human being. The latter is the most difficult. It is necessary to treat patients and other human beings with respect.

For twenty years, Hernesniemi has made trips abroad, approximately forty, choosing his destinations from what seems convenient, always considering the conditions of the place in order to teach other neurosurgeons. According to him, “if the country is restless or lacks basic living conditions and the level of hygiene is precarious, there is no point in having brain surgery”. However, in his experience, he realized that most countries are in a better condition than that imagined in Finland, which facilitates his project for the dissemination of knowledge.

In January 2016, Hernesniemi said in an interview published in the Central Ostrobothnia supplement Kepari: “I have no intention of quitting my job yet. In my opinion, the retirement age in Finland is very...
low”. Therefore, he opened a clinic in central China, where he currently works and believes he will continue for at least the next five years10.

In December 2017, Hernesniemi established the basis for JuhaH International Neurosurgical Center in Zhengzhou, Henan Province, China, after signing a full-time, 3-year contract with Henan Provincial People’s Hospital9. That was a new step into his passion for medical sciences and education. For him, medical education is about inheritance: the promotion of knowledge from predecessor to young people. The first Shaolin International Neurosurgical Conference and 2018 Central China Cerebrovascular Disease Forum, presided by Hernesniemi, are a clear hallmark of his superb interest and commitment in advancing neurosurgical fields all over the world8. The world of neurosurgery is also fortunate enough to have several current live lectures and lessons presented by Hernesniemi, like “Life in Neurosurgery” (2020)11 and Juha’s Neurosurgery Grand Round (2021)12.

Juha Hernesniemi’s legacy of neurosurgery resonates around the world. His work has influenced and continues to influence the practice of many neurological surgeons, contributing to the improvement of procedures and quality of life for patients.

CONCLUSION

Juha Hernesniemi is one of the most important neurosurgeons in the world, according to World Neurosurgery magazine, and after him the rhythms of surgery completely changed in the world to an active way. He is a pioneer of early aneurysm surgery and a big influence on modern neurosurgery. His contribution to a better medical practice is also evident in education, through the creation of a course which allows students to participate and discuss the procedures. Furthermore, with more than 600 publications, Hernesniemi is a true maestro in the surgical center and the fastest neurosurgeon in the world today.

REFERENCES


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Funding: nothing to disclose
Conflicts of interest: nothing to disclose