Japanese Neurosurgery Development and Projected Expectations

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The Japan Neurosurgical Society adopted board certification in 1967 and established a system essentially enabling only specialists to provide neurosurgical treatment. The passing rate for specialist examinations is around 60% to 70%, showing that testing is appropriately and strictly administered as a most focused Society activity. The system differs distinctly from that of Western countries by (1) not limiting the number of board certified neurosurgeons and (2) focusing on research.

Opinions vary about the “appropriate” number of specialists. I will not go into details here, but Western neurological societies, especially in Europe, strictly limit the number of specialists and chose to more specialize in “surgery” in neuroscience. Cerebral angiography conventionally conducted by neurosurgeons was transferred to radiologists and, as a result, endovascular therapy later emerged as a field of radiology. In Japan, neurosurgeons continued to conduct cerebral angiography and, accordingly, took up newly emerging endovascular procedures. In the US, cardiologists primarily conduct carotid artery stenting as an extension of coronary artery stenting. In lectures in Western countries, I have addressed the issue of medical-care fragmentation in terms of the danger of having “non-brain experts” treat cerebrovascular diseases. It appears, however, that this danger is considered “part of the risk” in

Western medical practice. The US has, however, recognized the issue and has, for nearly a decade, vigorously fostered young neurosurgeons able to provide endovascular treatment. It may be difficult for European countries to redirect their policy under their rigid system. Promising young clinical neurosurgeons who are also leading brain scientists are appearing in Europe, yet a prominent European neurosurgeon commented on his own country’s situation, saying that, as a result, neurosurgeons chose to specialize in surgery, avoiding radiology, traumatology, and oncology, and weakening the status of neurosurgery in his country. This means that neurosurgery must be based on wide-ranging neuroscience in its future development, and that a scientific approach is vital even in clinical surgery for solving clinical problems.

One other point I would like to make about Japanese neurosurgery is its emphasis on

research. This first became possible due to adequate human resources made available by not limiting the number of certified neurosurgeons. Second, neurosurgeons had to achieve results in their research to move up the career ladder in the hierarchy of Japan's "medical department/course system" (*ikyoku-koza-sei*). Research studies of little significance only aimed at achieving a doctorate admittedly exist, but many neurosurgeons have become interested in and found the best part of their study within this system, in which they have actively worked as researchers. Still others changed to basic brain science and are actively working in this new field. Historically, neurosurgery developed as a branch of surgery, but today is regarded as a field of neuroscience providing prevention and treatment based on surgical approaches. In many ways, Western neurosurgeons work similar to guilds, quite different from the Japanese approach. Competition is harsh until one is admitted to a "guild," but ceases to exist, along with quality control, once a person is admitted to the guild.

Historically speaking, neurosurgery started earlier in Germany and England than in the US, but never developed as an

academic discipline. The system developed as an academic discipline mainly in the US thanks to the efforts of Dr. Harvey Cushing, only after the 20th century began. Dr. Cushing systematized neurosurgery, understanding it as a part of neuroscience. He insisted that neurosurgeons have an academic spirit—a fact that laid the foundation for neurosurgery development in the US.

As clinicians, we should be working to save those patients in front of us using the best possible means and techniques available. We must also examine whether we are providing the best possible treatment while, at the same time, aiming to go beyond "the best." Dr. Cushing defined the "academic spirit" as "an insistent desire for progress in a forward direction and discontent with a stationary type of machine."

In today's world, with its life and information sciences, neuroscience has progressed significantly, becoming one of the most important fields in 21st century science. We should apply more of our wisdom and technology to solving the problems Japan and the rest of the world face. Neuroscience is becoming increasingly important, and we need not mention the "Decade of the Brain" declared in the US to ac-

knowledge the importance of neuroscientific development in the 21st century.

Japan's super-aging society has become a reality, and it is imperative that we promote clinical research to address neurological diseases and clinical issues of the aging brain. The fact that we now have clues for solving clinical problems thought impossible to solve before, thanks to rapid progress in basic and applied brain research, is an important accomplishment in present-day neuroscience as clinical medicine and for promotion of clinical research of the brain. Finding and training appropriate personnel is critical for developing neuroscience and solving clinical problems. To that end, we must cultivate neurosurgeons who can take a scientific approach in problem-solving in medical practice. We must also improve the personnel development environment. It is my hope that the Japan Neurological Society, with its many young, brilliant neurosurgeons, will develop specialists capable of providing quality healthcare in daily medical practice and will, at the same time, foster the talent, ability, and aspiration needed for addressing the many issues we face and that require solving from now on.