

15TH ANNIVERSARY OF UNIVERSITY DEPARTMENT OF
NEUROLOGY
SESTRE MILOSRDNICE UNIVERSITY HOSPITAL
70TH ANNIVERSARY OF DEPARTMENT OF NEUROLOGY
AND PSYCHIATRY

It is my great pleasure to announce this year, the University the Department of Neurology Sestre milosrdnice University Hospital, from Zagreb is celebrating its 70th anniversary as part of Department of Neurology and Psychiatry, and its 15th anniversary as an independent (self-governed) institution. On this occasion, let us remember some of the important people and events from the history of our Department.

Department of Neurology and Psychiatry was established at Sestre milosrdnice Hospital as an independent department in 1939. Before that year, neurology patients were treated at Department of Internal Medicine. The first head of the Department of Neurology and Psychiatry was Professor Josip Glaser, a respected expert in the field, succeeded by Professor Josip Breitenfeld in 1945, whose professional interest was neurology. Professor Vladimir Hudolin, an expert in the field of alcoholism and other dependencies, was nominated head of the Department in 1959. In 1971 the department became University Department as a part of the Sestre milosrdnice University Hospital.

Until 1994, education and professional work with patients in neurology and psychiatry were performed together. Then, in 1994, the two specialties were divided, independent departments were established, and education and professional work have since been performed in the two departments following specific curricula. In 1994, in the same year of the separation of neuropsychiatry, Professor Vida Demarin was nominated head of Department of Neurology, holding the position ever since.

Throughout its history, departments and divisions were moved within the hospital, according to the de-

velopment of professional interests. One of the major rearrangements was made in 1948 when the building serving as a separate ward for the care of nuns was turned into Department of Neurology and Psychiatry. Construction of an annex to the Department was completed in 1973 and for the Department of Neurology in particular in 1975. The greatest reconstruction of the Department of Neurology was done in 1994, including structural changes caused mainly by the development of new fields of neurology and new activities of the Department, with an unselfish help from numerous artists, painters, actors and singers from all over of Croatia. In addition, several subsequent renovations and reconstructions all had the same goal: to keep up with current trends in neurology. Today, the Department consists of:

- Intensive Care Unit
- Stroke Unit
- Division of Clinical Neurology
- Division of Cerebrovascular Diseases
- Division of Neuroimmunology and Neurogenetics
- Division of Neurovascular Doppler Diagnostics
- Division of Neurophysiology and Electrophysiology
- Zagreb Epilepsy Center
- Pain Clinic
- Center for Neurological Sciences and Brain Research with Division of Clinical Neuropharmacological Research
- Center of Ecological Neurology
- Outpatient Clinic

Using a multidisciplinary approach in the management of neurological disorders, more than 3000 inpatients and 14 000 outpatients are treated at the Department each year. Approximately 22000 diagnostic tests are performed in the Department diagnostic laboratories. The Stroke Unit, the first in Croatia, was established in 2001. Modern treatment of patients with cerebrovascular diseases, epilepsy, headache, other pain syndromes, central nervous system tumors, extrapyramidal diseases, demyelination diseases, spinal diseases, dementias and neurodegenerative disorders is performed daily at the Department, which has 70 beds and 13 day hospital chairs. Currently, the 136 employees include:

- physicians: 33 (2 specialists in neuropsychiatry, 18 specialists in neurology, 8 residents in neurology, 5 junior research fellows)
- University lecturers: 7 (5 professors, 2 assistant professors)
- PhD: 15
- MS: 5
- 58 nurses (9 with college and 49 with high-school education)
- 13 medical technicians and physiotherapists (12 with college and 1 with high-school education)
- 7 administrative workers
- 17 other auxiliary workers
- 4 porters
- 1 food server

During its long and successful history, the Department has been the leader in the region in professional, organizational, educational and scientific fields.

The Cerebrovascular Laboratory at University Department of Neurology was founded by Professor Višnja Hudolin in 1976, becoming the first such center in the then Yugoslavia and one of the first in Europe. Professor Vida Demarin, a pioneer in the field of cerebrovascular diagnostics, applied the concept of noninvasive ultrasound diagnostics of cerebrovascular diseases and created a powerful research center. The first cerebrovascular Doppler ultrasound machine in Croatia and (then) Yugoslavia was installed in this laboratory. Thus, a window into cerebral circulation was opened and the prevention of stroke by carotid endarterectomy was made possible. In 1998, the University

Department of Neurology of the Sestre milosrdnice University Hospital became the Reference Center for Neurovascular Disorders of the Croatian Ministry of Health and Social Welfare. In 2001, the Recommendations for stroke management were published, followed by Recommendations for stroke management – update in 2006. The superior ultrasound Doppler diagnostics, performed in more than 12 000 patients *per year*, enables early detection of vascular disorders in extra- and intracranial parts of cerebral circulation in order to administer preventive procedures. The Division of Neurovascular Doppler Diagnostics is the only one in Croatia completely equipped for thorough neurovascular diagnosis, allowing for the detection of cerebral emboli. It is also the only center in Croatia for cerebrovascular Doppler ultrasound education. So far, hundreds of students have attended 25 postgraduate courses on ultrasound diagnostics held in this laboratory. Many of them have gone on to become experts in the field.

Modern electrodiagnostic procedures, including detection of cognitive function disorders by use of evoked potentials, are performed at the Department Division of Neurophysiology and Electrophysiology in more than 9 000 patients *per year*. This is where the first electromyography in the territory of Yugoslavia was performed. Nowadays, several types of scientific research are conducted.

The Zagreb Epilepsy Center, established in 2005 as part of Department Division of Neurophysiology and Electrophysiology, promotes better understanding of epilepsy and works on improving the quality of life and reducing the social stigma associated with epilepsy. The Center offers modern and comprehensive diagnostic procedures for people with seizures, including scalp EEG, prolonged EEG after sleep deprivation and 3 continuous long-term video/EEG monitoring stations. The Zagreb Epilepsy Center is equipped to perform complete preoperative evaluations. Since 2009, it has an epilepsy surgery program, in collaboration with a neurosurgeon with fellowship in epilepsy surgery. The Zagreb Epilepsy Center collaborates with many institutions in Croatia and abroad, and encourages interdisciplinary research in epilepsy and neuroscience. One of its most important activities is the biennial Zagreb International Symposium in Epilepsies.

The Pain Clinic at the University Department of Neurology was founded in 2007. Common pain disorders, including back and neck pain, neuralgia, headache, migraine, fibromyalgia and other neuropathic pain syndromes are treated at the Pain Clinic. Treatments which can be offered at the Department are in general pharmacological methods (iv. infusions, nerve blocks) and non-pharmacological methods – TENS, ultrasound, laser and acupuncture. At first, the Pain Clinic was organized as outpatient service, but the need for treatment of severe neurological patients prompted and cooperation with other wards at University Department of Neurology. Furthermore, a multidisciplinary approach to the patient with pain is employed at the Pain Clinic, where the professional team includes a neurologist, a psychiatrist, a neurosurgeon and an anesthesiologist. The clear need for and benefit of this center was confirmed from the start, since chronic pain conditions are often inappropriately diagnosed and treated. In 2009, the University Department of Neurology, Sestre milosrdnice University Hospital became the Reference Center for Headache of the Croatian Ministry of Health and Social Welfare. The Recommendations for neuropathic pain treatment were published in 2008.

The University Department of Neurology is involved in international scientific projects as well as in the exchange of knowledge, experience and expertise with other departments of neurology in Croatia and abroad. It has become a fully modern department and partner in developing knowledge in neurosciences and clinical neurology.

During the past 15 years, intensive research activities of Department employees have allowed for many young researchers to be appointed junior research fellows on particular projects, where they have been actively included in investigations, published their results and advanced in their scientific careers. More than 35 of them successfully defended their Master of Science theses and acquired MS title, and more than 25 continued to doctoral dissertations and PhD titles. Most of them have been granted residency in their respective fields of medicine. In addition to the projects within the scope of the national Research Program of the Ministry of Science, Education and Sports, a number of international projects in collaboration with world-known university centers have been conducted at the Department.

Scientific projects within the scope of the National Research Program of the Croatian Ministry of Science, Education and Sports include:

- Prevention of cerebrovascular diseases by detection of initial disturbances of cerebral blood flow by means of doppler sonography
- Assessment of cerebral autoregulation capacity by TCD
- Evaluation of cerebral vasoreactivity by stress tests
- Program (ongoing): Vascular and degenerative mechanisms in neurological diseases:
- The role of vascular risk factors in Alzheimer disease pathogenesis
- Functional diagnosis of cerebral circulation
- The role of genetic markers in development of cerebral atherosclerosis

International projects include:

- Neurosonology in Acute Stroke (NAIS) – Neurosonology Research Group of the World Federation of Neurology
- Emboli Detection in CV Disorders – (Munich, Graz, Zagreb)
- IMT measuring as a predictor of atherosclerosis (Paris, Warsaw, Zagreb)
- Lifestyle changes in prevention of stroke – Joint Project of NOMASS project (Columbia University, New York)
- Asymptomatic Carotid Emboli Study – ACES
- General Anaesthetic *versus* Local Anaesthetic for Carotid Surgery – GALA
- Asymptomatic Carotid Surgery Trial – ACST
- Stroke in Young Fabry Patients – SIFAP
- Safe Implementation of Thrombolysis in Stroke Monitoring Study – SITS – MOST

The results of scientific projects have been published as original scientific papers in renowned international and Croatian scientific publications and presented at scientific meetings in Croatia and abroad, where they have been awarded prizes as the best presentations on several occasions. Overall, professional publications include more than 1 000 original scientific and professional papers, abstracts and published lectures.

Along with scientific research, a great number of international clinical trials covering all neurological fields have been conducted in the Department. Many of them, such as the activity of Department Division of Clinical Neuropharmacological Research, are still ongoing.

The internationally indexed journal *Acta Clinica Croatica* has been published since 1962 by the Sestre milosrdnice University Hospital. In 1995, Professor Zvonko Kusić was elected Editor-in-Chief and Professor Vida Demarin Deputy Editor. They published an editorial in No. 3 1995. This issue appeared in a larger format and with a new cover created by the painter Mihajlo Arsovski. In a brief and concise editorial, they elaborated their concept of the journal's future. First of all, it was decided that all articles be published in English with summaries in Croatian. Also, priority was to be given to scientific over professional papers, in order to achieve the quality level characteristic of renowned and esteemed medical journals from Europe as soon as possible. Many renowned professionals from Croatia and abroad have joined its Editorial Council, which has additionally enriched the contact of the journal with other medical settings. Today, we can proudly say that *Acta Clinica Croatica* is indexed in *Excerpta Medica*, *Medline* and *Science Citation Index Expanded*.

Members of the Department regularly participate in professional and scientific meetings in Croatia and abroad and also organize a wide variety of meetings in Zagreb. Second Croatian Neurological Congress was organized by the Croatian Neurological Society and the University Department of Neurology, Sestre milosrdnice University Hospital in 1997 as well as several congresses of the Croatian Society for Neurovascular Disorders.

Successful co-operation with a large number of institutions in the country, especially with the Croatian Academy of Sciences and Arts and Ruder Bošković Institute, has been practiced for a long time. As a part of a very fruitful cooperation with the Croatian Academy of Sciences and Arts, seven scientific meetings on brain disorders have been organized and proceedings published.

Every year since 2002, the Department has organized a meeting entitled *Where We Are in Neurology – Evidence Based Medicine*, which provides the latest information from all areas of neurology.

Since 2008 the Department has organized the International Neuropsychiatric Pula Congress, the 49th so far, covering the broad fields of neurology and psychiatry. The main topic in 2010 will be milestones in neurology and psychiatry in the last 50 years.

The International Postgraduate Course Stroke Summer School – Healthy Life Style and Prevention of Stroke was conceived by a few enthusiasts under the leadership of Professor Vida Demarin to fill the need for educating neurologists and those who are about to become neurologists in the broader field of stroke in general. The course has been held every year since 1990 at the Inter-University Center in Dubrovnik, with a total of over 600 participants.

As the result of the rich and fruitful scientific and professional work in the past years, many books, manuals and handbooks have been published:

- Doppler sonography of blood vessels
- The key to healthy days – flawless brain and blood vessels
- Stroke – a guide book for stroke patients and their families
- How to live with multiple sclerosis
- How to conquer migraine and other headaches
- The brain that lasts
- A scientific approach to diagnostics is therapy of migraine
- Scientific basis of teleneurology – telestroke model
- Cerebral circulation – clinical approach
- Handbook of neurology
- Images and memories from the first 20 years – 20th Anniversary of the International Course “Summer Stroke School – Healthy Life Style and Prevention of Stroke
- Neurology for dental medicine doctors
- Neurosonology

We are especially proud that many of the books edited by Professor Demarin and her coworkers have been recommended to patients and their families and to people without medical education.

A great number of public events and texts published in public papers concerning brain health and prevention of neurological diseases have made the subject very popular among the general public and have

instructed people on how to take much more positive and active attitudes towards their own health.

During the past 15 years, several societies have been founded: the Croatian Stroke Society, the Croatian Society of Ultrasound in Neurology, the Croatian Society for Neurovascular Disorders of the Croatian Medical Association and the Society for Maintaining and Improving Brain Health.

The Foundation for Cerebrovascular Disease Patients was founded in 2004 and as part of the Foundation the Center for Prevention of Cerebrovascular Diseases is in the process of being established.

The Sestre milosrdnice University Hospital became a teaching institution of the University of Zagreb for both School of Medicine and School of Dental Medicine and achieved the status of University Hospital in 1971. A comprehensive teaching program has been performed at Department of Neurology and Psychiatry for students of the School of Dental Medicine, Intercollegiate Social Work Study, Postgraduate Study for Residents in General Medicine and School of Medicine Postgraduate Study on Dependencies. Since the very beginning, special attention has been paid to nursing and medical care where high standards have been achieved. The Department has always had an important place in the education of nurses.

Today the University Department of Neurology is a teaching base for students of the Zagreb University School of Dental Medicine, School of Education and Rehabilitation and College of Nursing, along with the School of Medicine Postgraduate Study in Cerebral Circulation, Neurosonology and Ultrasound Assess-

ment of Cerebral Circulation. As part of the Croatian National Program, the Department organized a national project for the management of stroke patients, organization of stroke units and thrombolysis in many centers throughout Croatia. The Department also participates in the nNational Transplantation Project of the Croatian Ministry of Health and Social Welfare in organizing a teaching course on assessment of transcranial Doppler in confirmation of brain death. Intensive educational activities are performed Department and all aspects of undergraduate and postgraduate teaching and education are carried out. The Department co-operates with some of the most prestigious medical centers in the world, where a great number of physicians and nurses have been educated and trained. The Department is also a teaching base for residents in neurology from all parts of Croatia and neighboring countries.

Finally, the successful functioning of the Department would be impossible without efficient administrators, technicians, laundry, purchasing, custodians and cooks, to whom we are grateful.

At the end, exploring and writing about the history of the University Department of Neurology, Sestre milosrdnice University Hospital, it is obvious that we all have huge but sweet responsibilities and must show great commitment to provide the Department a bright and prosperous future.

Professor Vida Demarin
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