

Neurological training in Spain prior to the *MIR* residency system

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ABSTRACT

Introduction. There were no formal guidelines for specialising in neurology until the *MIR* residency system was implemented in 1984. Neurologists were mainly trained in France and Germany.

Method. A number of different articles on the subject were analysed; we also conducted interviews with leading neurologists whose specialist training predated the *MIR* system.

Results. Using the resulting array of personal experiences, we were able to analyse how neurology was taught before the *MIR* system had been created.

Conclusions. Prior to the implementation of *MIR*, Spain's specialist residency programme, new medical school graduates were taught neurology by doctors who had been trained in the French and German schools of neurology. Furthermore, most training centres were not officially recognised by universities.

KEYWORDS

Teaching, history of neurology, universities, departments, *MIR*

Introduction

As with any other medical specialty, teaching neurology was not formally regulated before *MIR*, Spain's specialist residency programme, was implemented in 1984 and became the only means of receiving specialist training.

In Spain, as in most European countries, studying and treating neurological diseases was once the province of alienists, later known as neuropsychiatrists. These doctors treated mental illnesses as well as a few true neurological disorders. Cerebrovascular accidents and degenerative disorders were treated by general practitioners.

The area of neurology was typically included in general pathology and medical pathology courses. Advanced plans of study created by different Spanish medical schools did not require that classes be taught by specialists. Neurologists only gave classes in a few medical schools, and such sessions tended to be sporadic.

In the early 20th century, Spain's main hubs for neurological training and research were Madrid and Barcelona.

One of the hallmarks of the Catalan school of neurology was its focus on clinical care and semiology. Its other distinguishing features were that it presented neurology as a separate practice from psychiatry, as well as its affinity for patient care, teaching, and research. Doctors in the Catalan school completed their specialist training in France.

The Madrid school was outstanding in the areas of histology and pathology thanks to such figures as Ramón y Cajal, Nicolás Achúcarro, and Lafora. Its clinical activity had an orientation that was more psychiatric than neurological. Most representatives of this school were trained in the German system; here, the underlying feature was an organicist view of neuropsychiatry.

At the same time, we must not overlook centres dedicated to neurological training and research in other parts of Spain, such as Hospital General de Asturias in Oviedo or Universidad de Pamplona.

In 1968, during the transition to the *MIR* system, autonomous universities were founded in Barcelona, Bilbao, and Madrid. Medical schools were based in hospitals unaf-

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filiated with universities, and this led neurologists to participate in the presentation of medical pathology courses.

Another early experiment was the short-lived National Postgraduate School of Neurology (*Escuela Nacional de Posgraduados en Neurología*), founded in Barcelona in 1978 and directed by Dr Carlos Oliveras de la Riva.

Academically regulated, official training for specialists was launched in 1984 with the implementation of the MIR system. MIR (*médicos internos residentes*) was created by the General Council of Specialties and Specialist Commissions in a process in which the SEN actively participated. Using the process called "proof of suitability", most of the neurologists who had been teaching classes in medical schools were granted professor status, and they were officially incorporated into the system for teaching neurology.

Material and Methods

Very few articles in the medical literature describe training methods, and we must therefore rely on the accounts of leading neurologists of the time. We also conducted interviews in order to record the impressions of some of the most important figures in Spanish neurology: Francisco Morales Asín, Santiago Giménez Roldán, Eduardo Martínez Vila, and Agustín Codina.

Discussion

In order to present a detailed analysis of how Spanish neurologists were trained, we will review the channels by which leading neurologists in our country received instruction, under whom, and the school or current to which they belonged. We will also describe their teaching activities and list their noteworthy students.

1. The Barcelona school

The main distinguishing feature of the Barcelona school was that it kept clinical neurology separate from the practices of surgery and psychiatry. Its main influence was the French school of neurology. The Barcelona school placed an emphasis on doctor training, as shown by the publication of numerous neurology textbooks and the founding of different societies and institutes. It was also known for presenting numerous specialist courses.

Artur Galceran i Granés (1850–1919)

Galceran i Granés studied medicine in Barcelona and earned his degree in 1875. He was trained in psychiatry by Dr Juan Giné y Partagás, and unlike typical professionals of his time, he referred to himself as a 'neurologist

and mentalist'. His labours, referring to both his teaching duties and his writings, were extensive; published works include *Tratamiento de las epilepsias*, *Neuropatología y Psiquiatría Generales*, and *Algunas inducciones sobre estática y dinámica del cerebro, que pueden servir para el esclarecimiento del concepto de localización*. He also served as the director of the following journals: *Archivos de terapéutica de las enfermedades nerviosas y mentales* and *Anales de la sociedad de Psiquiatría y Neurología*. Owing to his prestige, he was named director of the Sant Boi Asylum and the Pere Mata Institute in Reus.

In 1911, he founded the Barcelona Society of Psychiatry and Neurology. Article I, Section 3 of the Statutes lists the objectives of the society as follows: "to promote the teaching of psychiatry and neurology and support the creation of university departments, laboratories, museums, clinics, and dispensaries corresponding to those two specialties". This was the first Spanish society to address the issues common to both specialties.

Luis Barraquer Roviralta (1855–1928)

Barraquer Roviralta also studied in Barcelona, earning his degree in 1878. His dedication to neurology reflects the influence of Professor Bartolomé Robert, whom he assisted in the study and treatment of neurological patients. He specialised as a neurologist in Paris under Charcot, Babinski, Vulpian, Pierre Marie, and Duchenne de Boulogne. His medical practice displayed the clinical and semiological focus typical of the French school.

Barraquer Roviralta returned to Barcelona in 1881 and began working as a neurologist at Hospital de la Santa Creu, where in 1882 he founded a department known as the Electrotherapeutic Dispensary, and later named the Neurology and Electrotherapy Department. This was the first centre for clinical neurology to be created in Spain. A few years later, he also set up a neurological consult at Hospital de Nuestra Señora del Sagrado Corazon, founded in 1879.

His teaching activities were entirely hospital-based and therefore unofficial. Nevertheless, in light of his prestigious status and the newness of his specialty, he was invited by Ferrer Solervicens, Professor of Medical Pathology, to give a series of conferences at the medical school in Barcelona.

He published numerous studies in both Spain and France relating to his clinical cases and research. His most original contribution was the description of progressive cephalothoracic lipodystrophy, later known as Barraquer-Simons syndrome.

His dedication to providing both care and training motivated a large following of students to join his service and study neurology. This new generation included Dr Roca Munner, Dr Peres Casañas, Dr Tolosa, and his son, Dr Barraquer Ferré.

Luis Barraquer Ferré (1887–1959)

Barraquer Ferré earned his degree in 1917, having trained under his father exclusively. He later visited Hôpital de la Salpêtrière and Hôpital de la Pitié in 1921, where he met Pierre Marie and Babinski.

When Barraquer Ferré succeeded his father as the head of the neurology department at Hospital de la Santa Creu i Sant Pau, he too kept clinical neurology separate from psychiatry. Another dedicated teacher and prolific writer, his most important book was *Tratado de Enfermedades Nerviosas* [Manual of Nervous Disorders], published jointly with his first students, Gispert i Cruz and Castañer Vendrell.

The neurology department at Hospital de la Santa Creu i Sant Pau was the leading centre for neurological training between the 1930s and the 1950s. Its staff of neurologists included doctors from all across Spain: Gispert i Cruz, Castañer Vendrell, Corachán Llor, Torruella Font, Casellas, Ruiz Lara, Muntaner Marqués de Mallorca, Varela de Seijas, Gonzalo Moya, and Barraquer Bordas.

Barraquer Bordas, Subirana Oller, and Rodríguez Arias were the joint founders of the Spanish Society of Neurology in 1949.

Belarmino Rodríguez Arias (1895–1997)

Rodríguez Arias graduated from medical school in Barcelona in 1916. A specialist in neuropsychiatry, he received a thorough grounding in neuropathology. In Madrid, he studied under Lafora, Sacristán, Río Hortega, and the physiologist Negrín. He moved to Paris in 1918 to further his studies in La Salpêtrière under Pierre Marie, Babinski, and Souques.

In 1920, returned to Barcelona where he was hired at the Dispensary for Mental Illnesses, later known as the Municipal Psychiatric Clinic. That same year, he was also named director of the men's ward at the Sant Boi Asylum. Despite the psychiatric nature of his work, he always supported the organicist approach. Together with Dr Mirá y López in 1924, he founded the Spanish Association of Neuropsychiatry.

The neurological side of his work came to light in 1933 when he was named a clinical lecturer in neurology by the Board of the Universitat Autònoma de Barcelona. He taught until 1939 when the UAB was suppressed as a result of the Spanish Civil War.

In 1936, with the war still raging, he founded the Municipal Neurological Institute, the first institution in Spain to be dedicated exclusively to the treatment of neurological diseases. He based his research and teaching activities at this centre, in addition to completing clinical studies on the neurological manifestations of syphilis, multiple sclerosis, and von Economo disease. He also practised neuroradiology and invented the technique of double contrast myelography. His close ties with Dr Egas Moniz also led him to perform angiographies, and he was one of the first doctors in Spain to employ that technique.

Rodríguez Arias was one of the founding members of the Spanish Society of Neurology.

Ignacio de Gispert i Cruz (1903–1984)

Gispert i Cruz attended medical school in Barcelona and earned his degree in 1925. He completed his neurological training first under Barraquer Roviralta at Hospital de la Santa Creu, and later under Barraquer Ferré, whom he followed to the newly constituted Hospital de la Santa Creu i Sant Pau in 1929. There, he was named first assistant in the neurology department.

His publications were both copious and important, and he also contributed to several chapters of *Tratado de Enfermedades Nerviosas*, the neurology textbook coordinated by Dr Barraquer Ferré.

In 1941, in addition to his activities at Hospital de la Santa Creu i Sant Pau, he directed the neurology department at a children's hospital known today as Sant Joan de Deu. His work in paediatric neurology made him one of the pioneers in what would later become a new subspecialty.

He took a position as a neurologist at Hospital Clínic in 1945. He did not offer any theoretical classes, but doctors in training to become specialists flocked to his neurology consult. These aspiring neurologists included Dr Segarra Obiol, Dr Pons Bertran, Dr Viñes Morros, and Dr Isidro Sancho who succeeded him as department head in 1970.

Antonio Subirana Oller (1904–1992)

Subirana Oller earned his medical degree in Barcelona in 1926 and specialised in neurology in Strasbourg under Professor Barré. He then gained further experience in Paris under Babinski, Guillain, and the neurosurgeon Thierry de Martel.

Upon returning to Barcelona, he both practised medicine and taught in the medical pathology department headed by Professor Ferrer Solervicens. He was given the task of teaching neurology classes, and the notes he prepared reflect

a clinical and semiological approach. In 1966, he became director of Barcelona's Municipal Neurological Institute.

His impact as a teacher is reflected by the names of the many neurologists he trained: Oller Daurella, Eugenio Massó, Rafael Puncernau, Fabian Isamat, Emilio Comes, Ramón Florensa, Márquez, Jesús Dini, and his own son Manuel Subirana.

Along with Barraquer Bordas and Rodríguez Arias, he founded the Spanish Society of Neurology in 1949.

In 1953, he was named President of the SEN, and later served as its honorary president as well.

Cristóbal Lamote de Grignon (1913–2006)

Lamote de Grignon began his medical studies at Universitat Autònoma de Barcelona in 1936 and earned his degree in 1944. He took a position in Dr Pedro Pons's department of clinical medicine before joining Dr Rodríguez Arias at the Municipal Neurological Institute. In 1949 he completed further studies at Institut Pasteur and at La Salpêtrière under Dr Alajouanine. He then specialised in paediatric neurology under André-Thomas.

Upon returning to Barcelona, he worked as a paediatric neurologist at both the Municipal Neurological Institute and in the local maternity hospital. He was practicing that specialty exclusively by 1955, and in 1960 he founded a paediatric neurology centre (Instituto Provincial de Neuropediatria).

He is considered the founder of Spanish paediatric neurology, and taught many of our first neuropaediatricians, including Fernández Álvarez, Manera, Mula, Muñoz Yunta, Campo Castillo, and Corominas. Lamote de Grignon worked tirelessly as a teacher and researcher in this field. He organised and presented 15 classes on evolutionary and developmental neurology, and also published numerous monographs.

In 1971, he founded the Spanish Society of Paediatric Neurology; he was also one of the founding members of the International Association of Child Neurology.

Carlos Oliveras de la Riva (1914–2007)

Oliveras de la Riva also studied in Barcelona, receiving his medical degree in 1940. He began his neurological training under Dr Rodríguez Arias. After moving to Madrid in 1942, he began working with the pathologist Fernando de Castro. At the same time, he studied psychiatry with Professor López Ibor and internal medicine with Professor Jiménez Díaz. In 1944, he returned to Barcelona and joined its medical school as the head of the neurological dispensary within Professor Gibert Queralto's department of clinical medicine.

He is known for his studies of lathyrism, having collected a total of 107 cases and performed two anatomical pathology studies. At that time, the world's medical literature only contained one anatomical pathology study of lathyrism.

He reached the pinnacle of his teaching career in 1978 when he was nominated director of the short-lived National Postgraduate School of Neurology and made a senior lecturer. His work at Hospital Clínic contributed to the training of numerous neurologists, including Aragonés Ollé and Obach Tuca.

Oliveras de la Riva was President of the SEN from 1965 to 1968. In 1973, he was treasurer of the 10th International Congress of Neurology, held in Barcelona.

Ramón Sales Vázquez (1907–1971)

Sales Vázquez studied medicine in Barcelona. An autodidact in neurology, he displayed considerable affinity for clinical work and teaching. Within the medical school at Hospital Clínic, he worked in both the general pathology department under Dr Gironés and the medical pathology department under Professor Pedro Pons. He directed the Neurological Dispensary while remaining active as a teacher.

He was responsible for the creation of a treatment and rehabilitation centre for patients with poliomyelitis, a disease which caused epidemics in Barcelona in the 1940s and 1950s. Sales Vázquez presented a number of papers on the medical and social aspects of neurological diseases, in addition to writing several chapters in *Tratado de patología médica*, the textbook coordinated by Professor Pedro Pons.

Pons retired in 1966, and Sales Vázquez transferred to Barcelona's public tertiary care hospital as the director of its rehabilitation unit. The multiple dispensaries and centres he directed were instrumental in training many specialists, including Espadaler, Solé Llenas, Codina, Balcells, Balagué, Pou Serradell, Acarín, and Miquel.

Luis Oller Daurella (1919–1997)

Oller Daurella studied medicine at Universitat de Barcelona and earned his doctorate in 1967. He trained under Dr Antonio Subirana and completed further studies in Hôpital la Salpêtrière, Hôpital Sainte Anne, and Hôpital de la Timone in Marseille.

He later worked at Hospital de Nuestra Señora del Sagrado Corazón, where he directed the neurology department from 1966 to 1974. He was also the director of Centro de la Lucha Antiepileptica, and joined with Dr Subirana to found the Spanish League Against Epilepsy. His teaching activities mainly focused on the subject of epilepsy, and he organised yearly international symposiums from 1971 to 1991. In 1977, he published *Atlas de crisis epilep-*

ticas [A guide to epileptic attacks], which was highly regarded by his colleagues. Oller Daurella was one of the earliest promoters of using information technology in neurology.

Named President of the SEN in 1977, he also presided over the Spanish Society of Electroencephalography and Neurophysiology and the Spanish League Against Epilepsy. In 1979, he presided over the 10th European Meeting on Epilepsy.

José María Espadaler Medina (1925–1998)

Espadaler Medina, who also studied medicine in Barcelona, earned his degree in 1949 and his doctorate in 1954. He began his specialist training in Professor Pedro Pons's clinical medicine department, in the neurological dispensary directed by Sales Vázquez. He expanded his studies at Hôpital de la Salpêtrière in 1950 under Professor Garcin.

After returning to Barcelona, he worked once again with Sales Vázquez until 1962, when he transferred to Professor Sarró's psychiatry department. There, he directed a neurology outpatient clinic in addition to serving as a neurology consultant at the local psychiatric hospital. He was named head of the neurology department at Hospital de la Cruz Roja in Barcelona, where he remained until his retirement in 1987.

His dedication to teaching was such that he continued giving classes even during his years at Hospital de la Cruz Roja and at the psychiatric hospital, where he trained several psychiatrists. Between 1966 and 1974, he organised single-topic symposia in which neurologists representing Spain and numerous other countries presented their papers. The topics were consistently ahead of their time: headaches, myopathies, paraneoplastic neuropathies, etc. Foreign speakers included Raymond Garcin, Lhermitte, McDonald Critchley, Poch, and Fardeau.

When Universitat Autònoma de Barcelona was reinstated, he was made a professor.

He served the SEN as secretary from 1955 to 1961 and as president from 1973 to 1977. In 1973, he was the secretary of the 10th International Neurology Congress, held in Barcelona. Espadaler Medina was also the SEN delegate to the World Federation of Neurology from 1974 to 1982.

2. The Madrid school

The Madrid school of neurology was initially characterised by its histopathological approach; clinical practice was neuropsychiatric rather than neurological, with the psychiatric aspects being dominant. Neurology became a fixture in both clinical practice and the classroom in the

late 20th century. Neurology entered this new phase still very much influenced by neurosurgery, but it distanced itself from surgical activity in the 1970s.

Luis Simarro Lacabra (1851–1921)

After finishing his medical degree, Simarro Lacabra studied under Charcot at La Salpêtrière, as well as under Dr Ravier. From the latter, he learned techniques for staining nerve tissue in addition to the modern standards for physiological research. He researched nervous system histology, taught the Golgi stain technique to Cajal, and was granted the first chair of experimental psychology in Spain. His professional activity was fundamentally directed at psychiatry from an organicist standpoint.

As a teacher, he focused on histological studies of the nervous system. To this end, he teamed up with Dr Madinaveitia to found a laboratory for research into neurological histology and pathology. This laboratory attracted a number of young doctors and contributed to the training of both Achúcarro and Lafora. Distinguished scholars also attended the laboratory's meetings.

Simarro Lacabra stopped practising medicine in 1906 to better devote his time to laboratory work and politics; he was an active member of the Socialist party.

Nicolás Achúcarro Lund (1880–1918)

Achúcarro studied medicine in Madrid; before completing his degree, he also performed clinical studies in Germany. He became a doctor in 1904 and began working in Simarro's laboratory. In 1905, he moved to Paris and worked at La Salpêtrière, La Pitié, and Bicêtre.

At a later date, he would travel to Professor Kraepelin's Institute for Psychiatric Research in Munich and join the neuropathology laboratory directed by Dr Alzheimer. Achúcarro went on to direct the Government Hospital for the Insane in Washington, D.C. after being recommended by Dr Alzheimer, who himself had rejected the position. He stayed in the United States for nearly two years (September 1908–May 1910) and left behind such a favourable impression that the board asked him to pick his successor. He chose Dr Lafora.

After returning to Spain in 1910, he was hired by the Cajal Institute and took up the task of teaching neuropathology.

Gonzalo Rodríguez Lafora (1886–1971)

Rodríguez Lafora attended medical school in Madrid and earned his degree in 1907. While a student, he worked in the laboratory founded by Simarro and Madinaveitia.

Upon moving to Berlin in 1908, he worked with Dr Ziehen at the Charité medical school, and with Dr Oppenheim in his neurology clinic. He broadened his knowledge of neuropathology with Dr Vogt and Dr Broadmann. Lafora also worked with Dr Kraepelin and Dr Alzheimer in Munich before travelling to Paris to study under Dejerine and Pierre-Marie.

Lafora then journeyed to the United States in 1910 to direct the Government Hospital for the Insane in Washington, D.C. Nonetheless, he returned to Spain in 1913, where he worked with Cajal and with the psychology section in the Madrid School of Legal Medicine. He devoted himself to the education and rehabilitation of patients with intellectual disabilities. He was named director of the psychiatry department at Hospital Provincial.

Lafora fled Spain during the Civil War and found work in a university in Mexico City. When he returned to Spain in 1947, he was able to direct his former psychiatry department. His scientific activities mainly addressed neuropathology, although he did have an interest in clinical medicine, as we gather from his description of progressive myoclonic epilepsy (Lafora disease). Psychiatric medicine was the main focus of his clinical practice and teachings.

José Sanchís Banús (1893–1932)

Sanchís Banús studied histology and anatomical pathology under Dr Pío del Río Hortega. At Hospital Provincial, he was the director of the women's ward of the Neuropsychiatric Clinic. His teachings reflect a psychiatrist's point of view, mixed with elements of organicism gathered from his training in neuropathology. Some of his more distinguished students included Aldama, Nieto, Varela, Bustamante, and Alberca Lorente. He actively worked to bring about social reforms in psychiatric care using his connections in the Socialist party.

Manuel Peraita Peraita (1908–1950)

Dr Peraita studied in Madrid and began working in Professor Negrín's laboratory as an intern. He then studied neuropsychiatry with Dr Sacristán at the asylum in Cienfuegos. In 1933, he moved to Breslau, where he worked with Dr Foerster and Dr Altenburger.

He returned to Spain during the Civil War, in 1935, and studied deficiency diseases of the nervous system. Conditions in Madrid at that time provided him with numerous clinical cases of pellagra and lathyrism.

After the Spanish Civil War, he was an adjunct professor in the department of psychiatry and taught classes in Hospital de la Princesa and the asylum in Leganés.

Alberto Portera Sánchez (1928–)

Portera Sánchez studied medicine in Zaragoza and earned his degree in 1950. He travelled to Paris to specialise in paediatric neurology under Dr Thieffry. Following that, he journeyed to the United States, where he lived from 1952 to 1959 while completing his neurology residency and a Master in neuropathology at the University of Georgetown. He also taught at the University of Maryland.

After returning to Spain, he joined Dr Merchante's department as a teacher and clinician alongside Varela de Seijas and Gimeno.

As Spain's healthcare framework under the new social security system grew steadily, the university was forced to reform the traditional structure of its internal medicine programme designed to cover all medical specialties. Specialist divisions began to be created. In 1969, Professor Merchante added to his department by creating a neurology section for Portera, Rodríguez Vallejo, Varela de Seijas, and Antonio Barceló.

Dr Portera became head of the neurology department at Hospital 12 de Octubre, and taught classes until his retirement.

Gonzalo Moya Juan-Cervera (1931–1984)

In 1957, Gonzalo Moya made his decision to be a neurologist and travelled to Paris, where he worked for Professor Garcin at La Salpêtrière. He wrote his foreign study thesis on distal myopathies.

He returned to Madrid, where his family and social ties permitted him to influence the political regime enough to create a model neurology department. He inaugurated the Nicolás Achúcarro Neurology Department at the now-vanished Gran Hospital de la Beneficencia in 1964. The department was provided with all the latest diagnostic and clinical equipment. This innovative leader did not allow doctors to work at multiple centres and kept a close watch on their activities and working hours. The department eventually contained 83 beds. This was the setting in which Román Alberca, Campos Castelló, Luis Montserrat, González Sastre, Pérez Sotelo, Ramón Ricoy, Trujillano, and Giménez Roldán received their training prior to their respective brilliant careers in different hospitals and neurology departments.

The Nicolás Achúcarro neurology department gradually fell into decay owing to the complicated relationship between doctors and the board of directors. When Gonzalo Moya died, the department was renamed Hospital de la Princesa neurology department, under Dr Félix López López.

Eduardo Varela De Seijas (1931–)

Varela de Seijas studied medicine at Universidad Complutense in Madrid. He began training as a neurologist in 1956 in Barcelona, where he worked with Barraquer Ferré and Barraquer Bordas at Hospital de la Santa Creu i Sant Pau, and in Hospital Clínic with Sales Vázquez and Espadaler. He also studied at the Municipal Neurological Institute under Dr Rodríguez Arias.

To further his studies, he travelled to La Salpêtrière in Paris, where he worked with Dr Garcin. He finished his neurological specialty at the National Hospital in Queen Square, London.

After returning to Madrid, he worked in Hospital Clínico San Carlos. In addition to his clinical activities, he also joined the general pathology department headed by Professor Bermejillo and taught neurology to medical students and specialists in training. In 1969, with Professor Merchante, he opened a neurology unit within the department; the neurologist positions were filled by Portera, Rodríguez Vallejo, Barceló Rosselló, and Varela himself.

Varela was then named head of the neurology division at Hospital San Carlos; several years later, he was also made a senior lecturer at Universidad Complutense.

He also served on the Board of Directors of the SEN, as a member and as vice-secretary. Varela de Seijas held important positions within Spain's National Neurology Commission and the SEN's Committee on Education. He always pushed for neurology to be recognised as a discrete specialty by public health care centres, educational institutions, and medical schools, as well as by the Spanish Medical Colleges Organisation.

Alberto Gimeno Álava (1932–2011)

Gimeno Álava, another of Zaragoza's medical students, earned his degree in 1956. He showed an early interest in the neurological specialty under the influence of Professor Rey Ardid.

When he moved to Paris in 1956, he trained with Dr Garcin at La Salpêtrière and with Hécaen and Ajuria-guerra at Hôpital Sainte Anne. He also worked with Dr Ruggiero in the area of neuroradiology. Upon his return to Madrid in 1959, he practiced clinical neurology and taught classes as a member of Professor Casas' General Pathology department. In later years, he assisted Dr Sixto Obrador at Madrid's public tertiary care centre.

In 1964, he was made head of the neurology department at Clínica Puerta de Hierro. He was a dedicated teacher, and many of his students held distinguished positions in

the field of neurology: Román Alberca, García Albea, Berciano, López López, Massot, Liaño, and others. In 1977, he became head of the neurology department at Hospital Ramón y Cajal.

Gimeno Álava was an advocate of maintaining clinical neurology independent from the area of surgery, which was only a common practice in Cataluña at that time.

He was a clinical lecturer in neurology at Universidad Autónoma de Madrid, and later became a senior lecturer in the department of internal medicine at Universidad de Alcalá de Henares.

Ignacio Pascual Castroviejo (1934–)

Dr Pascual Castroviejo studied at Universidad Complutense de Madrid and specialised in neurology at Hospital Clínico San Carlos. Upon deciding to pursue advanced studies in paediatric neurology, he trained at both the University Hospital of Würzburg and Hôpital Civil in Strasbourg.

Upon returning to Madrid in 1965, he was the director of the paediatric neurology unit at Hospital La Paz, where he was recognised as an excellent teacher of aspiring neuropaediatricians. He was made a senior lecturer in paediatrics at Universidad Autónoma de Madrid.

His research activities were wide-ranging, with projects exploring neurological malformations, neuroectodermal disorders, and childhood epilepsy. The field of paediatric neurology in Spain owes a considerable part of its international prestige to the Pascual Castroviejo's research.

He served the SEN as its vice-president from 1985 to 1987, and its president from 1987 to 1989.

3. Other schools

Outside of Madrid and Barcelona, the specialty of clinical neurology mainly developed in two schools: Universidad de Navarra in Pamplona, and Hospital Provincial de Asturias in Oviedo. The former split from the German school of neurology, and the latter, from the French school.

Wenceslao López Albo (1889–1944)

López Albo worked with Dr Achúcarro and furthered his training in Paris under Pierre Marie, and then in Breslau under Foerster.

When he returned to Spain, he was appointed director of a psychiatric centre, Hospital Psiquiátrico de Zaldivar. Later, in 1928, he served as director of a clinic in Valdecilla (Cantabria), and also headed the neuropsychiatry division. He resigned in protest two years later after clashing with hospital sponsors over his progressive ideas, including an initiative to replace nuns with licensed nurses.

Because of his Republican views, he fled to Mexico after the Spanish Civil War and died in exile in 1944.

Juan José Barcía Goyanes (1901–2003)

Barcía Goyanes developed an early zeal for neurology while still a medical student at Santiago de Compostela, thanks to lectures by Professor Novoa Santos, the head of General Pathology. His neurological training began with brief visits to Madrid, where he worked with Sanchís Banús and Gonzalo Lafora. After completing his general surgery training, he specialised in neurosurgery in Paris under the direction of Clovis Vicent and Thierry De Martel.

In 1931, he became head of the nervous diseases department in Valencia. That department provided care to neurological and psychiatric patients alike. Dr Jorge Sempere Soler's doctoral thesis, which presented 4276 cases attended in that department, listed only 183 neurological patients. Barcía Goyanes requested consults with otologists and ophthalmologists and published several articles on the ophthalmological and otological manifestations of multiple sclerosis. He also founded the *Revista Española de Oto-Neuro-Oftalmología y Neurocirugía* (1944–1979). He was President of the SEN from 1955 to 1959.

Francisco Morales Asín (1933–)

Morales Asín studied medicine in Zaragoza, obtaining his diploma in 1957; he also earned a doctorate from Universidad de Valladolid in 1973.

In 1960, after deciding to seek further studies in Germany, he moved to Cologne and worked as a junior doctor at St. Josef-Hospital.

In July 1961, he was hired as a junior doctor in the department of neurology and neurosurgery in Bethesda Krankenhaus at Wuppertal-Eberfeld. He remained in that department, directed by Dr Schiersmann, until late 1962. Seeking additional training, he then joined the Nevenzentrum at the Frankfurt University Hospital. He spent his time studying psychiatry and neurology under Zutt, Dorndorf, Frowein, and Kulenkampf.

When he returned to Spain in 1965, he met with success in his competitive exams and was offered a position as a neurologist at both Hospital General de Asturias and Hospital Psiquiátrico Provincial. As of that date, neither centre offered formal neurological care; neurological patients were seen by specialists in internal medicine. In contrast, a neurosurgery department was very much present. His post was created for the purpose of starting a neurology unit at Hospital General and assessing neurological patients at Hospital Psiquiátrico Provincial.

In 1964, the efforts by the head of cardiothoracic medicine, Dr Fernando Alonso Lej, gave rise to a programme for training doctors in different specialties. New doctors taking the competitive exams held yearly would now complete a written exercise followed by a personal interview; the combined result would determine admission into the specialty.

The neurology department at Hospital General de Asturias provided an excellent training programme, which produced the first neurologists in the north-western region of Spain. These doctors would go on to become department heads and consultants in hospitals all over Spain, and included such names as Pablo Rey del Corral, Carlos Hernández Lahoz, Bernardino Blázquez Menes, Txomin Arbizu, and Domínguez Zarita. The first consultants in the neurology department were Pablo Rey del Corral and Carlos Hernández Lahoz.

The neurology department at HGA trained specialists using a dual theoretical and practical system. It introduced clinical sessions in the morning, in which doctors commented on any overnight changes in patients and presented new cases that had been admitted or seen in the outpatient clinic. Doctors also referred to the literature related to the cases being studied, or that describing new developments in clinical practice, treatments, or pathology. Joint sessions with the neurosurgery and neuroradiology departments were also held periodically.

Neurology residents participated in general clinical sessions in the hospital, alongside consultants and residents from other services. These sessions presented clinical and anatomical pathology findings. In this way, doctors established links between the discipline of internal medicine and neurological manifestations associated with certain entities.

Dr Morales Asín left his position in Oviedo in 1975 and moved to Zaragoza, where he had been named head of neurology at Hospital Clínico Universitario Lozano Blesa, the hospital associated with Zaragoza's medical school.

He remained the Head of Neurology until his retirement in 2002; in addition, in 1982, he was named a senior lecturer in neurology by the university. His department trained young neurologists under the new *MIR* residency system.

José Manuel Martínez Lage (1935–)

Martínez Lage attended medical school in Santiago de Compostela, graduating in 1959. Following that, he transferred to the medical school at Universidad de Navarra, and earned his doctorate in 1966.

While still a student, and after receiving his medical degree, he studied clinical neurology and electroencephalography under Dr Javier Tejeira at the universities of Santiago and Pamplona.

His neurological training was largely self-organised; he also collaborated with the neurosurgeons Pedro Molina and José de la Herrán. He furthered his studies in Paris in 1963 under Professor Garcin at La Salpêtrière. Once he had completed his specialty and obtained a degree in neurophysiology, he transferred to King's College Hospital Medical School to study under David C. Marsden.

In 1966, he was named head of neurology and neurosurgery at Clínica Universitaria de Pamplona, and remained there until his retirement in 1993. During this time, the functional structure of his department was changed to create more specialised subunits.

In 1966, he was granted a professorship in neurology by Universidad de Navarra. His teaching activities were extensive, and his students included Juan José Zarranz, the chair of neurology at Universidad del País Vasco, in addition to Eduardo Martínez Vila and most of the actively practising neurologists in north-western Spain.

Under his leadership, the department was particularly active in organising postgraduate training in clinical neurology, electroencephalography, and epilepsy. His experience teaching in tandem with Dr Gimeno Álava resulted in a lecture on neurological training that was later published under the title "La problemática del desarrollo de la neurología en España" in *Archivos de Neurobiología*.

Such teaching activities made the neurology and neurosurgery department in Pamplona one of the most important centres for neurology training in Spain. During the 20 years following its inception in 1959, it awarded 32 specialist diplomas in neurology.

Martínez Lage was President of the SEN from 1979 to 1981. He also served as the SEN delegate to the World Federation of Neurology and vice-president of the SEN between 1985 and 1989. He was named a Distinguished Member of the SEN in 1991.

Manuel Nieto Barrera (1934–)

Nieto Barrera attended the medical school in Seville, graduating in 1957. He developed an interest in neurology as a

medical student and intern in the general pathology department.

After finishing his degree in 1960, he too travelled to La Salpêtrière in Paris for advanced training in clinical neurology under Professor Garcin. He also acquired experience in neuroradiology in La Pitié under Ruggiero, Dilange, and Metzger. He gained additional experience at Hôpital Saint-Anne and Les Enfants Malades by working with Hécaen and Angelergues at the former and Thieffry at the latter.

He began practising as a junior doctor in 1962 at Domaine du Plovier, a centre dedicated to childhood epilepsy and directed by Dr Jean Miribel. This would become his area of expertise within the field of paediatric neurology.

In 1963, he returned to Seville as the head of the neurology and electroencephalography unit within Professor Suárez's department of paediatrics. In this position, he too would train future specialists.

Conclusions

Prior to the implementation of *MIR*, Spain's medical residency programme, new medical school graduates were taught neurology by doctors who had trained in the French and German systems. Furthermore, most training centres were not officially recognised by universities.

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