

in these services, managing conditions requiring rapid intervention is a top priority.⁷ From the perspective of emergency services, close and fluid cooperation with other professionals is essential and results in higher quality and safer care.^{8,9}

The results reported by Ramírez-Moreno et al., and our own, are a reflection of the changes taking place in the relationships and needs of different professionals involved in diagnosing and treating a condition. Stroke is one of the best examples. The role of neurologists in emergency services, which was more limited a decade ago, is now especially relevant and gives very satisfactory results. Any study addressing the connections between medical professionals and the factors that contribute to those connections, such as this one by Ramírez-Moreno et al., is therefore a necessary and welcome addition.

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Regarding emergency department consultations with neurologists: Author's reply[☆]

Acerca de las interconsultas a los neurólogos formuladas desde urgencias: respuesta del autor

Dear Editor:

We very much appreciate the comments made by Drs Busca and Miró about our study and agree with their conclusions.¹ Viewing such an important part of our workload from the perspective of an emergency department gives us the opportunity to comment on a few aspects that we did not examine in our study. Our purpose was to provide a descriptive and

retrospective analysis of the in-hospital consultations (IHC) requested of our department during a 5-year period; we agree with Busca and Miró that this is an innovative approach since it shows trends in IHC use.² Consultations from emergency departments have not traditionally been considered IHCs, as we mentioned in our study. Nevertheless, we deemed it appropriate to include them in our analysis since the emergency department frequently requests formal ICHs, using the same procedure as other hospital departments, when staff have questions about how best to manage or diagnose neurological diseases. We should also point out that our hospital did not have an on-call neurology service and pagers were not used in the morning hours during this study period.

Several studies with different methodological approaches provide useful data on neurological care in emergency departments.^{3–7} According to 2 different series, these emergencies account for 3% to 14% of all medical emergencies. An observational prospective study conducted several years ago in a general hospital found that 5% of all emergencies were neurological conditions, and that 90% required assessment by a neurologist. We should highlight that nearly 75% of neurological emergencies in tertiary hospitals can be considered life-threatening or potentially life-threatening, while this percentage would be 60% for all other medical specialties.⁶ Several studies have cited that these neurology-related consultations are more frequent between mid-afternoon and night-time,⁷ which points to a need for

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a 24-hour on-call neurology service. The overall increase in the demand for healthcare also affects emergency departments, and leads to an increased number of consultations related to neurological diseases. Studies conducted in Spain show a 2% to 4% annual increase in IHCs to the neurology department.^{4,6} This marked increase in the number of IHCs, apparent in Busca and Miró's letter to the editor¹ and in our article,² proves that consulting neurologists and/or on-call neurologists are needed in emergency departments. The explanation for such a pronounced increase lies in a number of factors, including a shift in social attitude towards diseases, increased prevalence of age-related diseases due to population ageing, easier access to hospital care, the possibility of rapid diagnosis and treatment, delays in scheduled medical appointments, and the availability of 'free' healthcare.⁸

Patients requiring an IHC from the emergency department have a mean age (SD) of 43 (1.6) years and are predominantly female (59%). The most common reasons for IHC are epileptic attacks, loss of consciousness, stroke, and headache. These data agree with findings from more in-depth studies of the neurological disorders most frequently managed in emergency departments.^{3,7,9,10} Your results, in which cases are classified by symptoms, and not by diagnostic category, find focal neurological signs to be the most common neurological emergency. This tendency, which has also been noted in other studies,^{6,11} underscores the importance of stroke care: approximately 1 out of every 3 patients receiving emergency neurological care has suffered a stroke.¹²

Several studies analysing the impact of including neurologists in emergency departments from different viewpoints have concluded that results are positive in terms of overall reduction of hospital admissions, reduction of unnecessary hospital admissions, correct diagnosis, safety, prognosis, quality of care, and coordination with other levels of care.^{3,6,7,10,12–14} In hospitals with on-call neurology services, that specialty has the second-highest number of IHCs from the emergency department,³ which highlights both the relevance of and satisfaction with emergency neurological care.

Neurology's rapid advances and increasing complexity, the increasing demand for neurological care, the rising number of neurologists, and the need for further advances and independent management of the modern specialty resulted in a paradigm shift. One of its results was the National Strategic Plan for the Integral Treatment of Neurological Diseases, which devoted a chapter to urgent care, a feature that previous neurology programmes lacked.¹⁵ The order approving the new residency training programme for the specialty of neurology was published on 20 February 2007 in Spain's official gazette (B.O.E.). We must highlight that the preamble to this ministerial order begins with a specific reference to actively involving neurologists in unconventional care areas, including non-hospital care, emergency care, and critical care. Several relevant strategies (code stroke, stroke units, reperfusion treatments) that have changed stroke management radically in the past few years have also transformed the relationship between emergency and neurology departments.¹²

According to scientific, educational, and care quality criteria, neurological emergencies should be managed by

neurologists when necessary. A close, fluid, and trusting relationship between the departments involved is therefore essential. Nevertheless, although this solution may seem obvious, it does not constitute common practice in many hospitals in Spain. We are glad to learn that emergency departments are working to improve quality of care, with no influence by economic, organisational, or corporate interests.

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Charles Bonnet syndrome secondary to panretinal photocoagulation[☆]

Síndrome de Charles Bonnet secundario a panfotocoagulación retiniana

To the Editor:

Charles Bonnet syndrome (CBS) is a condition characterised by the appearance of visual hallucinations in patients with impaired vision and preserved cognitive status.^{1–3} Prevalence of CBS ranges from 1.84% to 3.15% although estimates are as high as 60% among patients with severely impaired vision. These high numbers may be due to lack of awareness of CBS; also, patients fear they will be regarded as mentally ill if they mention their hallucinations.^{1,4}

Although the underlying cause of CBS is unknown, the most widely accepted theory is neuronal deafferentation.⁴ According to this theory, loss of retinal stimulation causes decreased stimulation of the occipital cortex, but unlike in amaurosis, stimulation does not disappear completely. Residual afferent signals are thought to trigger the deafferentation phenomenon by causing histological, biochemical, and anatomical changes to the synapse in an attempt to compensate for the limited stimulation received. This transforms neurons into hyperexcitable cells.

Our patient was a 60-year-old man treated with argon laser panretinal photocoagulation (PRP) due to retinal ischaemia caused by diabetic retinopathy (DR). He had undergone 4 PRP sessions with 1500 burns per session (pulses of 500 microns and an exposure time of 0.1–0.2 s). The patient reported having seen moving, chromatic images of animals and faces immediately after each PRP session. These visions lasted 48–72 hours and appeared and disappeared abruptly. His personal history also included medically treated arterial hypertension and he reported no drug allergies. No other personal or family history was relevant.

Examination evidenced a visual acuity of 0.05 in both eyes (OU) and the anterior pole exhibited stable pseudophakia in OU. Intraocular pressure was 14 mmHg in OU and eye fundus revealed a clinically significant macular oedema and pigmented laser scars from PRP. The patient was transferred to the neuro-ophthalmology department

and diagnosed with CBS secondary to argon laser PRP as treatment for DR.

CBS is characterised by the presence of complex visual hallucinations which are usually persistent and often appear suddenly. Patients do not exhibit any other sensory hallucinations. Hallucinations may be simple, appearing as basic geometric lines and figures, or else complex and structured. They typically manifest as images of people, faces, or trees, and they do not make sounds. Images may also be in black and white or in colour, and they may be static or appear to move.⁵ In most cases, these hallucinations last less than 10 minutes and are usually repetitive in the form of a persistent fixed stereotype. The course of the disease is episodic, cyclical, or chronic, with a duration generally lasting less than 18 months, although the history in some published cases had lasted several years. In those patients in whom CBS progresses to amaurosis, paradoxical cessation may occur.

The cause originating these hallucinations is still unknown, but its trigger factors may include fatigue, dim lighting, and flash blindness.⁴ Development of CBS has also been associated with ophthalmological medical treatments,^{6–9} systemic treatments,¹⁰ surgery,¹¹ and systemic disorders.¹²

Photocoagulation is a procedure that uses a high-intensity beam of light to coagulate tissues. It is used to prevent fibrovascular proliferation in patients with retinal ischaemia, which occurs in diabetic retinopathy and retinal thrombosis. When light energy is absorbed by the tissue being treated, it is converted into thermal energy. When the tissue temperature is increased by the action of the laser, it results in denaturation of tissue proteins and coagulative necrosis. The efficacy of any type of photocoagulation depends on the extent to which light penetrates the ocular media and the degree of light absorption by the pigment on the treated tissue. Argon laser emits two wavelengths of light: blue-green (488–532 nm) and green (514 nm), which are mainly absorbed by the tissues that contain melanin or haemoglobin.^{13,14} They are therefore used to photocoagulate vascular lesions on the retina and choroid. Effects of laser on tissues of the posterior segment include photochemical and thermal effects, and vaporisation. Photochemical reactions can be induced by ultraviolet or visible light, which is absorbed by tissue molecules or photosensitising drug molecules which are subsequently converted into cytotoxic molecules (free radicals, etc.). The absorption of laser energy by the tissue pigment elicits a temperature increase of 10–20 °C, with the resulting protein denaturation. Vaporisation takes place when the temperature of a substance is raised above the boiling point and micro-explosions occur, as can be seen in excessively intense burns caused by an argon laser.^{13,14}

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