



Psychiatric comorbidities go unrecognized in patients with epilepsy: “You see what you know”

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ABSTRACT

Patients with epilepsy (PWE) have a significantly higher prevalence of psychiatric comorbid disorders involving depression, anxiety, psychotic, and attention-deficit disorders compared with the general population or patients with other chronic medical conditions. Currently, there is no systematic approach in the evaluation and management of psychiatric comorbidities in these patients. In addition, neurologists are not trained to recognize these disorders, and consequently, they remain undertreated. Despite the high prevalence of psychiatric comorbidities in patients evaluated for epilepsy surgery, most epilepsy centers in North America do not include a psychiatric evaluation as part of the presurgical work-up. Despite the intimate relationship between psychiatric comorbidities and epilepsy, collaboration between epileptologists and psychiatrists is sparse at best and nonexistent at worse. The purpose of this paper was to highlight and try to understand the causes behind the persistent lack in communication between neurologists and psychiatrists, the gap in the training of neurologists on psychiatric aspects of neurologic disorders and vice versa and to propose new initiatives to fix the problem.

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1. Introduction

Psychiatric comorbidities are commonly seen in patients with epilepsy (PWE), with depression and anxiety disorders being the most frequent comorbidity with lifetime prevalence rates ranging between 30 and 35% in population-based studies [1]. Depression is also the most frequent psychiatric comorbidity in other major neurological disorders such as stroke, migraines, dementia, multiple sclerosis, and Parkinson's disease [2].

Psychotic and attention-deficit disorders are also more commonly identified in PWE than in the general population, with Attention Deficit Hyperactivity Disorder (ADHD) the most frequently diagnosed psychiatric comorbidity in children with epilepsy [3]. Despite the wide recognition of the relatively high prevalence of these common psychiatric comorbidities, they remain underdiagnosed and undertreated in the majority of these patients [4]. Furthermore, psychiatrists are rarely involved in the evaluation and management of PWE, and a gap of psychiatric care has become the rule rather than the exception in most epilepsy centers and neurology clinics.

What are the obstacles that PWE face in having access to psychiatric care? They may include the following: a) the very limited training of neurologists and psychiatrists on psychiatric aspects of neurologic disorders

and neurologic aspects of psychiatric disorders [5,6], b) neurologists' failure to recognize the need to have psychiatrists as part of the epilepsy team [7], and c) outpatient visits with a limited time available to address nonepilepsy-related symptoms [8]. The aim of this article was to review these obstacles and suggest potential solutions.

2. The complexity of the problem

2.1. Poor psychiatry training of neurologists and poor neurology training of psychiatrists

Today in the United States, medical school curricula limit the education of psychiatric and neurologic disorders to four-week clerkships, each, despite the pivotal role that psychiatric disorders play in the course of most (if not all) medical disorders. Longer training blocks would logically be expected during the course of neurology and psychiatry residencies, given the relatively high comorbidity of psychiatric disorders in most neurologic conditions and vice versa. Yet, such is not the case. In fact, psychiatry residents are required to rotate in neurology services for only two months while neurology residents are only required to spend one month in a psychiatry service during the course of their residency as of two years ago, prior to which, no psychiatry rotations were required. It should be noticed, however, that the limited psychiatry training during a neurology residency is not universal. In certain

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countries, like Germany, neurology residency programs include six to twelve months rotations in psychiatry services.

A survey on the training of neurology to psychiatry residents was completed by 60 psychiatry residency program directors [6] with the intentions of improving the psychiatry residents' learning experience during their required 2 months rotation. A majority of responders perceived significant weaknesses of the inpatient neurology rotation. The highest interest was focused on differential diagnosis of psychiatric phenomena in neurologic disorders, cognitive and mood effects of stroke, sleep disorders, and genetically mediated neurologic disorders (e.g., Huntington's disease). Yet, 30% of PWE, stroke, multiple sclerosis, Parkinson's disease, and dementia are expected to experience mood and anxiety disorders in the course of their life. This survey clearly illustrates the failure of faculty to tailor the training of psychiatry residents on the type of clinical problems they are likely to face during their residency training and professional career.

2.2. Lack of interest in neurologic literature by psychiatrists and vice versa

The limited exposure of psychiatry by neurology trainees and vice versa persists after the completion of their respective residency training, as neurologists rarely attend psychiatry conferences and vice versa.

Furthermore, despite the fact that a significant number of psychiatric scientific journals today focus on the neurobiologic bases of pathogenic mechanisms of psychiatric disorders, neurologists rarely read these journals and vice versa. After all, "you see what you know"... [9] and so the cycle continues.

2.3. Lack of communication between neurologists and psychiatrists

Neurologists and psychiatrists treat disorders affecting the central nervous system, which often present with both psychiatric and neurologic clinical manifestations and which often have common pathogenic mechanisms [10]. Yet, neurologists and psychiatrists do not talk to each other. This bizarre (almost psychotic) phenomenon is universal and acknowledged by members of both disciplines in most countries [5].

Who is at fault? Clearly both disciplines. Some of the lack of communication may be a consequence of the poor knowledge of psychiatric aspects of neurologic disorders and of the neurological aspects of psychiatric disorders by neurologists and psychiatrists discussed in the previous section. But, the problem is more complex. Indeed, neurologists have little "respect" for psychiatrists and have developed the false impression that they can be replaced by neuropsychologists (which has become a reality in many major epilepsy centers in North America today). Psychiatrists have often compounded the mistrust between the two disciplines by refusing to manage psychiatric comorbidities of neurologic patients, with the excuse that the psychiatric symptomatology is an expression of the underlying neurologic disorder and hence should be managed by the neurologist [5]. For example, it is not unusual for psychiatrists to refuse a transfer to the psychiatric inpatient unit of a PWE who developed a postictal psychotic episode or of patients with clearly identified psychogenic nonepileptic seizures (PNES). In fact, the lack of management of patients with PNES is one of the most obvious expression of the lack of communication between the two disciplines. Psychogenic nonepileptic seizures are the classic example of a heterogeneous neuropsychiatric disorder, which requires the management of complex psychiatric disorders (often chronic) frequently associated with neurologic disorders, such as treatment-resistant headaches and in 5% to 40% comorbid epilepsy [11–13]. Yet, rarely do psychiatrists coordinate the psychiatric and psychological management of these patients, and often, they return the patients to the neurology clinic with the excuse that the patient is suffering from epilepsy [14,15]. By the same token, neurologists cannot wait to discharge these patients from their service as soon as the diagnosis is made, with the excuse that since it is a psychiatric condition, it needs to be managed by a psychiatrist [15]. Ultimately, patients and their families are left without having any understanding of their condition; they

continue to have recurrent admissions to neurology services, often with a "stop" in the intensive care unit where they may be intubated and placed in coma protocols in the midst of a "pseudostatus", misdiagnosed as status epilepticus by Emergency Room (ER) physicians and neurologists who are not aware of the evaluations that the patient has already gone through [13].

This phenomenon is the expression of a failure of neurologists and psychiatrists to take ownership of the management of these difficult to treat patients, which borders on neglect on the part of both disciplines. The lack of communication between neurologists and psychiatrists is clearly the reason for this sad and shameful reality that only tarnishes both disciplines.

2.4. No psychiatrist in the epilepsy team

Neurologists constantly complain that psychiatrists "are not available" to evaluate and manage their PWE and blame them for the obstacles they have to endure to have access to psychiatric care. Yet, neurologists may be responsible for the failure to have psychiatrists in their neurology/epilepsy outpatient clinic. This phenomenon is illustrated in the guidelines of the National Association of Epilepsy Centers (NAEC) that need to be met by epilepsy centers to receive accreditation as centers that provide the most comprehensive evaluation and management of seizure disorders and their comorbidities (*Level 4*). The criteria of required professional disciplines include the need for a neuropsychologist *but not of a psychiatrist* [17]. Failure to recognize the need of a psychiatrist exists despite the fact that these centers typically evaluate and manage patients with the more severe forms of epilepsy, who have a high prevalence of psychiatric comorbidities (ranging between 30% and 70%) [16]. Clearly, the lack of a psychiatrist in major epilepsy programs resulted from the *neurologists' failure* to recognize the need to have one. Is it that neurologists have concluded that a neuropsychological evaluation can replace a psychiatric evaluation? Neuropsychological evaluations complement a psychiatric evaluation, but they do not replace them. As discussed in the article on "Psychiatric Aspects of Epilepsy Surgery" in this issue, the consequences of not having a psychiatrist as part of the epilepsy team are multiple, including failure to identify patients at risk for postsurgical psychiatric complications, and the consequent delay to start the proper treatment.

Furthermore, failure to include a psychiatrist among the necessary personnel in the guidelines for *Level 4 Epilepsy Centers* has been used by hospital administrations of various epilepsy centers as an excuse to refuse to budget a salary for a part-time psychiatrist: "if a psychiatrist was necessary, they would have been included in the NAEC guidelines", they claim.

As can be inferred from the above observations, the collaboration between epileptologists and psychiatrists is more often than not sparse. The lack of communication between the two disciplines has resulted in serious consequences. These include the following: 1) the persistent misconceptions by clinicians on the potential proconvulsant effect of psychotropic drugs, which include also antidepressant drugs of the selective serotonin reuptake inhibitor (SSRI), selective serotonin norepinephrine reuptake inhibitor (SNRIs), tricyclic antidepressant (TCAs) families, and Central Nervous System (CNS) stimulants. Such misconception has been an important obstacle in the treatment of the more common psychiatric comorbidities in PWE such as mood, anxiety disorders, and attention-deficit hyperactive disorders [16]. As reviewed in the articles by Dunn and by Munger Cleary and Salpekar in this issue, the use of these psychotropic drugs at therapeutic doses has been proven to be safe in PWE.

3. Are neurologists willing and able to spend the necessary time to investigate the existence of psychiatric comorbidities in outpatient visits?

In a survey conducted with 106 neurologists, selected at random from a list of members of the American Academy of Neurology that treated

PWE, Gilliam et al., investigated how often they routinely screened for depression in these patients [8]. Among the 67 neurologists who answered the survey, only 7% routinely screened for depression in their clinic. On the other hand, 79% indicated that they would screen if they were presented with a trial that demonstrated that treatment of depression improved compliance and health outcomes such as quality of life.

As discussed in the articles by Bermeo-Ovalle, Munger Cleary, and Salpekar in this issue, the use of screening instruments is an initial and very practical tool to identify the existence of psychiatric symptoms during the course of an initial evaluation and/r during follow-up visits. Yet, the neurologist must carefully review with the patient the endorsed psychiatric symptoms in a screening instrument during the visit... and that takes time, in particular, in the case of suicidal ideation! Given that the average follow-up visit in an outpatient epilepsy clinic is 14 min [8], it is not surprising that clinicians “elect” to avoid screening for psychiatric symptoms.

Furthermore, using open-ended questions about the patients' psychiatric status (e.g., “are you depressed?”) is not sufficient to identify symptomatic patients, particularly in those suffering from chronic mood and anxiety disorders, who may have no “recollection” on what it feels like to be in a euthymic state. Enquiring about *specific* psychiatric symptoms provides a more reliable strategy to identify symptomatic patients, and this can be easily achieved with screening instruments [18]. For example, in a prospective study, Armanious et al. evaluated the psychiatric status of 69 outpatient veterans with epilepsy and a history of mood and/or anxiety disorders, previously diagnosed in the psychiatry service [19]. When they were seen in the epilepsy clinic, 69.7% of these patients scored in the symptomatic range for probable current major depressive episode and/or generalized anxiety disorders according to the Neurological Disorders Depression Inventory in Epilepsy (NDDI-E) and the Generalized Anxiety Disorder-7 (GAD-7). Furthermore, 94% of these patients had been treated with psychotropic drugs at suboptimal doses, probably resulting with the misconception by psychiatrists of a proconvulsant effect of antidepressant drugs. The data from this study illustrate the poor communication between the two disciplines within the same institution.

4. Potential solutions

The data presented in this article clearly illustrate a long-standing problem that any reasonable individual recognizes as absurd and a tarnish on the two disciplines. Accordingly, solutions must be implemented without delay. Given the complexity of the issues raised in this manuscript, we suggest the following options.

4.1. Neurology and psychiatry residency programs with expanded curricula covering neurologic aspects of psychiatric disorders and vice versa

The writings of Goethe “You see what you know” [9] are totally applicable to the observations made in this article. Thus, the creation of a curriculum that provides a solid fund of knowledge on the concepts that psychiatrists need to know with respect to the evaluation of psychiatric aspects of neurologic disorders and vice versa is a first step. A model of such curriculum can be implemented in joint sessions of neurology and psychiatry residents, based on the following strategic plan:

- i) *Monthly workshops held during the academic year* that are based on an in-depth discussion of real clinical cases that combine psychiatric aspects of a neurological condition and vice versa. Each discipline will be in-charge of presenting and leading the discussion of a relevant and representative case on alternate months. These workshops would help psychiatry residents recognize the atypical clinical presentation of psychiatric comorbidities in PWE and other neurologic disorders.
- ii) *Four to six journal club meetings*, which will expose psychiatry residents to relevant neurology scientific journals and vice versa.

- iii) *Expanding rotations in psychiatry and neurology services from four to 12 weeks during residency training.* Nevertheless, while these rotations should include inpatient services, an effort should be made to expose residents to the more frequent clinical questions they will need to address when they go into practice. Thus, exposure to psychiatry trainees of neurologic disorders associated with high prevalence of psychiatric comorbidities (e.g., epilepsy, stroke, Parkinson's disease, dementias, headaches, and multiple sclerosis) may be more useful than rotation through the neuromuscular clinic. Likewise, exposure of neurology residents to the evaluation and management of outpatients with mood, anxiety disorders, and ADHD will be more useful than a long rotation in an inpatient “locked” psychiatric unit where patients with severe psychotic disorders are being treated.
- iv) *Planning the neurology and psychiatry clerkships in the third year of medical school*, which can give medical students interested in these fields the opportunity to take additional elective rotations in these services. Indeed, such electives have been found to be pivotal in the career choice of many medical students and help to learn important concepts of these disciplines, which will be helpful in future training.
- v) *Establish workshops on pharmacotherapy with psychotropic medications and commonly used neurologic drugs that can have psychotropic properties.* Workshops on the use of psychotropic drugs are likely to give neurology and psychiatry residents an in-depth understanding of the advantages and limitations of the use of these drugs in neurologic disorders. They would help to eliminate the commonly held misconceptions of these drugs' “proconvulsant properties” and would provide them with the necessary concepts to start pharmacotherapy in common psychiatric comorbidities in neurologic disorders. By the same token, they would help familiarize psychiatry and neurology residents with the potential for iatrogenic psychiatric and neurologic adverse events associated with commonly used drugs in neurologic conditions. Ultimately, the concepts acquired in these workshops would help overcome one of the common obstacles in the management of common psychiatric comorbidities in PWE, by giving neurologists the tools to start the appropriate pharmacologic regimen and by recognizing when to refer to the psychiatrist. This initiative has been introduced at the neurology and psychiatry residency programs of the University of Miami, Miller School of Medicine by one of the authors (MRL). The American Board of Psychiatry and Neurology (ABPN) has recognized the need for psychiatrists to be trained in neurology and vice versa, as reflected in the inclusion of questions of both disciplines in the board examinations. Furthermore, the creation of joint neurology and psychiatry residency programs reflects as well the ABPN recognition that a number of medical students finish their training with an interest of developing expertise in both disciplines. To date, however, there are only five programs in the USA (Brown University, Medical University of South Carolina, New York University School of Medicine, University of Massachusetts, and University of Texas Southwestern Medical Center). Each program has one to two residents per year.
- vi) *Increasing the number of interdisciplinary programs during professional society meetings.* Neurologists and psychiatrists in practice are expected to update their knowledge in local, regional, national, and international specialty and subspecialty meetings most of which are under the auspices of professional societies. For epileptologists and neurologists that treat PWE in the USA, the annual meetings of the American Academy of Neurology (AAN), the American Neurological Association (ANA), and the American Epilepsy Society (AES) and the meeting of the International League Against Epilepsy (ILAE) are the most frequently attended. For psychiatrists in the USA, the meeting of the American Psychiatric Association (APA), the Society of Biological

Psychiatry, and the meeting of the American Neuropsychiatric Association (ANPA) are among the most frequently attended. Yet, participation of psychiatrists in neurology meetings and vice versa is limited. While an increasing number of symposia and workshops have been included in the annual meetings of the AES and ILAE on the prevalence and clinical manifestations of comorbidities in epilepsy, programs devoted to the actual management of common psychiatric comorbidities in PWE and the specific role of the neurologist in the management of these comorbidities are almost nonexistent. Furthermore, despite the relatively high prevalence of psychiatric comorbidities in epilepsy, only a handful of psychiatrists are members of the AES. By the same token, the annual meeting of the APA has devoted very limited sessions to review the psychiatric aspects of epilepsy. For example, the 2019 Annual Meeting of the APA is scheduled to include only four courses related to neurologic disorders. The 2019 Annual Meeting of the AAN included only two courses, one on the assessment and management of neuropsychiatric symptoms in neurocognitive disorders and a second one on functional neurologic disorders. Psychiatric aspects of epilepsy will be covered in a 30-minute presentation that is part of a basic course of epilepsy.

The ANPA is a professional society created with the specific aim to review the neurologic aspects of psychiatric disorders and vice versa. One would expect that clinicians from both disciplines would chose to be members of such society and attend their annual meeting. While there are more than 25,000 psychiatrists and 12,000 neurologists in the USA, the current roster of the ANPA includes only 500 members, most of whom are psychiatrists and not all of whom are physicians. Thus, only 1.3% of neurologists and psychiatrists combined (or less) have joined the professional society dedicated to the education of physicians in the evaluation and management of neurologic aspects of psychiatric disorders and vice versa. Sadly, these observations explain the lack of communication between the two disciplines.

5. Concluding remarks

The concepts reviewed in this article clearly reflect the existence of persistent barriers separating the two disciplines, despite the significant daily advances on the neurobiologic bases of psychiatric disorders. In fact, no one would question the fact that many of the common psychiatric disorders are neurologic conditions with psychological symptoms, as neuropathologic, neurochemical, and neuroradiologic changes have been identified in the brains of patients with primary mood, anxiety, psychotic disorders, and ADHD. Accordingly, one would expect that a close collaboration between neurologists and psychiatrists would have been established a long time ago.

The Task Force on Education of the ILAE Commission on Neuropsychiatry appointed proposals to address the educational needs of epileptologists about the psychiatric comorbidities. A survey circulated among 211 healthcare providers of PWE in 36 countries recognized the need to improve the education of clinicians with respect to development and refinement of clinical skills, the use of screening tools, and the importance of having a psychiatrist and clinical psychologist as part of the epilepsy team [20].

Clearly, the time to change the working relation between neurologists and psychiatrists is way overdue. The reasons for this bizarre phenomenon defy any logic, and any resistance to overcome these barriers should generate shame among neurologists and psychiatrists alike.

Neurologists and psychiatrists are both responsible in the planning and implementation of the most appropriate strategies in the treatment of psychiatric comorbidities and in the elimination of the stigma frequently associated with from these conditions. Such plans should be initiated at several levels including professional societies (e.g., APA and AAN/AES), the way the American Heart Association and the American Stroke Association developed guidelines for the optimal prevention of cerebrovascular accidents. At the institutional level, departments of neurology and psychiatry must plan the optimal training of their faculty and trainees and the implementation of evaluation and treatment strategies of PWE with the goal of maximizing their respective resources. However, all of these concepts will remain utopic fantasies until psychiatrists and neurologists recognize the absurdity of their lack of interaction and start talking to each other!

Conflict of interest

There is no conflict of interest.

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