



## REVIEW ARTICLE

## Neurology and literature 2<sup>☆,☆☆</sup>

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#### Abstract

**Introduction:** Good literary fiction has the potential to move us, extend our sense of life, transform our prospective views and help us in the face of adversity. A neurological disorder is likely to be the most challenging experience a human being may have to confront in a lifetime. As such, literary recreations of illnesses have a doubly powerful effect.

**Objectives:** Study the synergies between neurology and fictional literature with particular reference to narrative based medicine (NBM).

**Development:** Doctors establish boundaries between the normal and the abnormal. Taking a clinical history is an act of interpretation in which the doctor integrates the science of objective signs and measurable quantities with the art of subjective clinical judgment. The more discrepancy there is between the patient's experience with the illness and the doctor's interpretation of that disease, the less likely the doctor-patient interaction is to succeed. NBM contributes to a better discernment of the meanings, thus considering disease as a biographical event rather than just a natural fact. Drawing from their own experience with disease, writers of fiction provide universal insights through their narratives, whilst neuroscientists, like Cajal, have occasionally devoted their scientific knowledge to literary narratives. Furthermore, neurologists from Alzheimer to Oliver Sacks remind us of the essential value of NBM in the clinic.

**Conclusions:** Integrating NBM (the narrative of patients) and the classic holistic approach to patients with our current paradigm of evidence based medicine represents a challenge as relevant to neurologists as keeping up with technological and scientific advances.

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#### PALABRAS CLAVE

Historia de la  
medicina;  
Historia clínica;  
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#### Neurología y Literatura 2

#### Resumen

**Introducción:** La buena literatura de ficción tiene la capacidad de conmovernos, expandir nuestros sentidos, cambiar nuestras perspectivas futuras y ayudarnos a afrontar mejor la adversidad. Por otra parte, una enfermedad neurológica es uno de los mayores desafíos a los que

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Medicina basada en la narrativa;  
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puede enfrentarse una persona, lo cual dobla en valor las recreaciones literarias de trastornos neurológicos.

**Objetivos:** Estudiar las sinergias entre neurología y literatura de ficción en relación con una medicina basada en la narrativa (MBN).

**Desarrollo:** El médico establece las fronteras entre lo normal y lo anormal. La historia clínica es un acto de interpretación que consiste en integrar la ciencia de los signos objetivos con el arte de reconocer y valorar los síntomas subjetivos. Cuanta mayor discrepancia exista entre la vivencia de la enfermedad por parte del paciente y la interpretación de aquella por parte del médico, menor probabilidad tendrá de prosperar la relación médico-enfermo. En este sentido, la MBN sirve contribuye a discernir los significados que encierra el hecho de enfermar, considerando la enfermedad como un suceso biográfico más allá de un hecho natural. Escritores de ficción han dotado de sentido universal a las enfermedades; asimismo, neurocientíficos como Cajal han aplicado ocasionalmente sus descubrimientos en ficciones literarias, mientras grandes neurólogos desde Alzheimer hasta Oliver Sacks nos recuerdan la importancia de la MBN en la consulta.

**Conclusiones:** Integrar una MBN (la narrativa del paciente) con el paradigma actual de la medicina basada en la evidencia plantea un reto a la neurología tan relevante como los avances científicos y tecnológico.

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## Introduction

*Linden for insomnia, / hysteria, cephalgia;  
For fluxes, make tisanes/ by brewing dry galls taken  
From the leaves of oak or cork trees;  
For pains of indigestion, / a camomile infusion;  
There is no better remedy...<sup>1</sup>*  
Pascual Iniesta (Fig. 1)

Good fiction writers move us, awaken our senses, and change our future perspectives. In doing so, they prepare us to face adversity. Neurological illness is one of the greatest challenges an individual may ever have to face in his or her entire lifetime. This being the case, literary depictions

of neurological disease are doubly relevant. The first part of 'Neurology and Literature' stressed the importance of a comprehensive education, in which works of fiction complement the academic and clinical studies in the course of a neurologist's professional training.<sup>2</sup> This second part aims to address the concept of narrative-based medicine (NBM) and delve more deeply into the symbiotic relationships linking fiction to medicine and neurology. We emphasise that this approach to intellectual development has granted neurologists better comprehension of the patient's point of view, accompanied by increased empathy, tolerance, and understanding in doctor-patient encounters.

Rather than a mere natural condition, illness is first and foremost a life event that interrupts or changes an individual's life project. Knowing how to react in the face of adversity, whether our own or that of others, is as important to a doctor as knowing the pathogenesis of a disease. Fiction writers provide valuable descriptions of the first of these two crucial aspects of illness. Reconciling holistic medicine, based on each patient's individual experience, with the aetiopathogenic, pathophysiological, and clinical-anatomical paradigms that have governed Western medicine since the 19th century now seems as relevant an undertaking as recovering the case notes taken by such classic neurologists as Alois Alzheimer (1864-1915). Other important points include revisiting and even incorporating forgotten concepts such as Jackson's dissolution of the nervous system and Pascal's concept of the proper use of sickness. In turn, the depictions of illness provided by the great writers of fiction serve up medical histories based on patient narratives. They provide a sharper version of reality, without losing sight of the historical and social context of neurological disease. The above premises may thus be integrated into the current paradigm of evidence-based medicine. In turn, some neuroscientists, led by Cajal, have brought their extraordinary knowledge of pathology to the table of literary imagination.



**Figure 1** Pascual Iniesta Quintero (1908-1999), just to right of Gregorio Marañón (centre, in lab coat) doing rounds in Hospital General, circa 1929.

Seen from this perspective, literary recreation of neurological diseases contributes to the forging of ties between two very distinct entities: the neurologist's highly trained mind and the patient's perception of the disease.

## Procedure

### Literature and medicine: a symbiotic relationship

*It is difficult to remain an emperor in presence of a physician, and difficult even to keep one's essential quality as man. The professional eye saw in me only a mass of humours, a sorry mixture of blood and lymph.*<sup>3</sup>

Emperor Hadrian (second century CE, according to Yourcenar.

Medicine provides an inexhaustible supply of resources for fiction writing, and vice versa. In Book I of *The Iliad*, Homer describes the plague sent by the god Apollo against the hosts of Agamemnon. When rational medicine appeared three centuries later, so did the figure of doctor. Not a shaman or medicine-man, but one versed in an art form, employing a technique (*techné iatriké* in Greek; *ars medica* in Latin), one who knew why he did what he did, beyond mere irrational empiricism or mystical religious beliefs. One noteworthy text, arising from the rational medicine current that emerged in about the fifth century BCE in the Ionian Islands and coast, was a brief text written by Hippocrates or one of his contemporaries. In it, the author manifests his rejection of charlatanism and superstition. *On the Sacred Disease*, with its intentionally ironic title, aims to illustrate the popular misconception of epilepsy. It constitutes the pivotal text in traditional Western medicine in that it distances itself from irrational, pre-technical, and belief-based empirical medicine. Furthermore, it lays the groundwork for the later development of scientific medicine, which would not arrive on the scene for another 20 centuries. It cannot be chance that led the author to write an argumentative treatise on a disease which so closely unites the normal and abnormal states and has such heterogeneous and complex manifestations. An excerpt reads as follows: "But this disease seems to me to be no more divine than others; but it has its nature such as other diseases have, and a cause whence it originates, and its nature and cause are divine only just as much as all others are, and it is curable no less than the others, unless when, the from of time, it is confirmed, and has become stronger than the remedies applied".<sup>4</sup> With none of the irony displayed by the original Hippocratic text, a Spanish medical textbook from 1939 still included *morbo sacro* and *morbus sacer* as synonyms for epilepsy.<sup>5</sup>

The doctor-writer may well be the figure best embodying the symbiotic process by which both doctors and writers have benefited from contributions from the other camp. The Iberian Peninsula alone has given us such names as Miguel Torga, Luis Pimentel, Lobo Antunes, Martín Santos, Pío Baroja, and others. The fusion of the two disciplines was best represented by Anton Chekhov (a man who bore an astonishing resemblance to Nicolás Achúcarro). The subtlety and meticulousness in his story-telling are directly related to the keen powers of observation and true empathy which

he developed in clinical practice. On the other hand, we might consider the influence of *Examen de ingenios* by Dr Huarte de San Juan (1594) on *Don Quixote* by Cervantes, or how *Psyche* by Carl Gustav Carus (1848) inspired the development of Dostoevsky's characters. Just as medical jargon is inspired by, benefits from, and is humanised through literature, literature enriches its lexicon with terms that have traditionally been relegated to scientific texts.

### Narrative-based medicine

*Being a good listener is a doctor's most important attribute.*

Attributed to Carlos Jiménez Díaz

The aim of practising medicine is to provide effective treatment that is sometimes curative, often palliative, and always comforting. Two decades ago, evidence-based medicine (EBM) arose for the purpose of protecting patients and preventing unnecessary drug trials. This approach takes the patient's individual values and circumstances into account and aims to combine the doctor's own clinical skill with the best available external medical evidence, gathered by means of systematic studies. It involves decision-making based on the evidence obtained through randomised double-blind clinical trials. Here, the doctor's skill and clinical judgement join forces with accumulated experience and common sense so that he or she can make informed decisions on how best to treat and care for the patient.<sup>6</sup> EBM marked the establishment of a universally approved formula for regulating, and where possible reducing, damage arising from scientific and technological advances.

Although the idea was extensively described by Laín Entralgo in the middle of the past century,<sup>7</sup> the term 'narrative-based medicine' or NBM is a recent invention. This complement to EBM evolved from the field of medical humanities. NBM provides meaning, context, and perspective to the patient's predicament.<sup>8</sup> This practice involves prioritising the patient's reports to better understand their meaning and using the patient's symptoms or subjective descriptions as a basis for evaluating the objective and quantifiable findings from clinical examinations or complementary tests. The approach considers the patient's medical history to be a judicious medical interpretation of the patient's symptoms and concerns. As such, the language employed should foster doctor-patient communication, rather than creating obstacles in its path. By this logic, discouraging terms like 'untreatable' should be phased out in favour of more neutral words like 'drug-resistant' in such chronic diseases as epilepsy. The same is true in cases of terminal illnesses—an example would be amyotrophic lateral sclerosis (ALS)—which has no effective cure but can in fact be treated; and even though this perspective is discouraging, the patient will benefit from some degree of relief and consolation. In any case, the patient's own accounts will often determine the treatment regimen. In fact, there is no one better for telling the story of a disease or events in a medical history than a well-informed patient. This helps us understand the extent of the discomfort caused by the disease. One good example is provided by

a writer with ALS who describes his nights. His words become increasingly poignant as he reveals the full magnitude of this terrible condition for which so little relief is available. "There is no saving grace in being confined to an iron suit, cold and unforgiving. The pleasures of mental agility are much overstated, inevitably—as it now appears to me—by those not exclusively dependent upon them. Much the same can be said of well—meaning encouragements to find non-physical compensations for physical inadequacy. That way lies futility. Loss is loss, and nothing is gained by calling it by a nicer name".<sup>9</sup>

On occasions, the tragic decision that brings a patient to Switzerland in search of assisted suicide (whether or not we approve) is completely understandable: "—imagine or recall some occasion when you have fallen down or otherwise required physical assistance from strangers. Imagine the mind's response to the knowledge that the peculiarly humiliating helplessness of ALS is a life sentence (we speak blithely of death sentences in this connection, but actually the latter would be a relief)".<sup>9</sup>

With his view that neurological diseases are not shackles, but rather open windows from which we can observe different forms of consciousness and develop new facets and latent talents, Oliver Sacks has emerged as one of the most popular authors representing the specialty. He describes the fascinating experiences of his patients in such books as *The Man who Mistook His Wife for a Hat*, *Migraine*, *Awakenings*, and *An Anthropologist on Mars*.

Lastly, the revealing diagnostic utility of NBM is shown in the first recorded case of Alzheimer disease, when the renowned German doctor chronicled all of his visits with his patient Auguste D. He described her as having a preserved ability to name objects that contrasted sharply with her inability to remember having seen them, and also observed severe attention and language deficits: "—How are you? —It is always one as the other. Who carried me here? —Where are you? —At the moment, I have temporarily, as I said, I have no means. One simply has to. . . I don't know myself. . . I really don't know. . . dear me, what is to then? —What is your name? —Mrs. D., Auguste. —When were you born? —Eighteen hundred and. . . —Your birthday? —This year, a past year. —When born? —Eighteen-hundred, I don't know. —What did I ask you? —Ah, D., Auguste".<sup>10</sup>

## Neurologists and fiction

In a survey completed during a past Congress of the EFNS,<sup>11</sup> three neurologists cited the works of Oliver Sacks as having had the greatest influence on their professional careers and lives. Sacks, an English neurologist who lives in New York, writes stories that are certainly vivid examples of NBM. Strictly speaking, Sacks's stories are neither literary fiction nor dramatised medical histories. Rather, they constitute erudite, reflexive, and systematic presentations of interesting cases, accurately taken from neurological practice. In each anecdote, the patient's narrative serves as the guiding thread of the story.

In her stories, Anglo-Welsh writer Margiad Evans describes the treatment she underwent in a London neurological institute in *The Nightingale Silenced*. In this book,

she relates the onset of her seizures, post-ictal paralysis, and the psychological damage caused by the progression of the disease. In her opinion, the notion of epilepsy as diabolical possession is an idea that probably arose among epileptics themselves; those who experience seizures feel that their bodies are suddenly seized by an alien force.<sup>12</sup> But the epitome of scientific divulgation through literature was Russian novelist Fyodor Dostoevsky (1821-1881), whose depictions of epilepsy are revealing on many levels. This writer kept abreast of advances in neuroscience, and in 1863 he expressed his wish to consult with the famous neurologists Armand Trousseau (1801-1867) and Moritz H. Romberg (1795-1873), in Paris and Berlin respectively. In a letter to Turgenyev, he expressed both his doubts and his curiosity about the true origin of the disease: "I am going to Berlin and Paris—but for the shortest possible time—for no other reason than to consult specialists in epilepsy (Trousseau in Paris, Ramberg in Berlin). There are just no specialists in Russia, and I receive such a variety of contradictory advice from the local doctors that I have lost all faith in them".<sup>13</sup> Nevertheless, in the same Russia that produced the great neurophysiologist Ivan Sechenov (1829-1905), Dostoevsky had consulted with a doctor in Siberia, and had a more favourable impression of him than the one expressed in his letter. "I quite unexpectedly had an epileptic fit that scared my wife to death and filled me with sadness and depression. The doctor (a learned and competent one) told me that, notwithstanding what other doctors had previously told me, I had real epilepsy and that I could expect to suffocate during one of the fits as a result of throat spasm [. . .] In general, he advised me to beware of the new moon. (Now the full moon is approaching and I expect a fit)".<sup>13</sup> It was Romberg (not 'Ramberg' as Dostoevsky calls him in his letter) who recorded the first statistics on factors triggering seizures in epileptic patients, including the influence of the phases of the moon.<sup>14</sup> By 1880, Dostoevsky had become so familiar with medical science that when he was criticised for a passage in *The Brothers Karamazov* (the book in which he also mentions Claude Bernard's experiments), he called on Aleksandr Blagonravov to give his expert opinion. That doctor-writer corroborated the science behind Dostoevsky's fantastic descriptions.<sup>13</sup>

In another twist, the life of the Russian novelist was recreated by Belarusian neuroscientist Leonid Tsytkin (1926-1982), who followed the trail of Dostoevsky's third and longest journey through Europe in the company of his wife. In his spare time, when not working at the Institute of Poliomyelitis and Viral Encephalitis in Moscow, Tsytkin imagined the couple's reactions to an epileptic seizure: "He was half-sitting on the rug between Anna Grigoryevna's bed and the wall, where she had dragged him, gasping under the weight of his body, and placed a pillow under his head—and his convulsions were already coming to an end, but there was foam on his lips, and so she wiped it away—and slowly opening his eyes, he looked at her without recognition".<sup>15</sup>

## Cajal's works of fiction

*This serum. . . has the singular property of tempering the activity of nervous centers where the antisocial passions reside. . .*<sup>16</sup>



**Figure 2** Portrait of Santiago Ramón y Cajal (1852-1934) by Ricardo Madrazo. Ateneo Científico, Artístico y Literario de Madrid [The Madrid Athenaeum].

The Spanish Society of Neurology organises a contest for short stories featuring the brain, similar to the Ramón y Cajal prize granted by the College of Physicians of Madrid for the best work of fiction. In 2008, we proposed an excursion to follow in the footsteps of Santiago Ramón y Cajal (1852-1934) (Fig. 2). Along this route, we stopped at the former San Carlos Faculty of Medicine (currently home to the College of Physicians of Madrid). Here, we visited the room where Cajal taught histology and made science come alive in his chalkboard illustrations.<sup>17</sup> During the tour, we caught a glimpse at the many facets of the father of modern neurology, from his interest in photography and drawing (both of which he incorporated into his scientific works) to his penchant for writing essays and memoirs. The latter includes *Recollections of my Life, Advice for a Young Investigator, Cafe Chats*, and other untranslated works (*Quijote y Quijotismo, El mundo visto a los ochenta años*). However, his works of fiction are less well-known: five short stories written between 1885 and 1886, in a collection titled *Vacation Stories: Five Science Fiction Tales*. The theme uniting these tales is their shared optimistic view of both science and progress, but they also feature an unusual protagonist: the microscope. In 'For a Secret Offence, Secret Revenge', a prominent German researcher exacts retribution for his wife's infidelity by infecting his young assistant with Koch's bacillus and accelerates his wife's ageing process with a substance called 'seniline'. Allowing the ends to justify the means, Cajal contrives to end the story on a happy note of reconciliation. In 'The Corrected Pessimist', Cajal employs a metaphor that falls somewhere between the classic rite of dream incubation in the Temple of Asclepius and rhetorical healing of classical antiquity. Here, a venerable sage appears to the protagonist of the story, a young doctor who has lost interest in life, to show him the way using philosophical ideas. After a peaceful night's sleep, the young man awakes the next morning with the sensation of looking through a microscope and being able to perceive the smallest details of the universe. With the same clairvoyance, he regains both his confidence and his interest in life and goes on to personal and professional success. In 'Natural Man and Artificial Man', Cajal orchestrates an interesting

dialogue concerning science and religion between two characters who have been raised in different cultural settings. The conflict between the two figures becomes apparent to the reader when the natural man instructs the artificial man that "scientific theses can only be fought with facts of scientific induction".<sup>16</sup> In 'The Accursed House', a destitute young doctor who has lost his entire fortune in a shipwreck finds shelter in a house that is under a curse. The doctor discovers that the 'curse' is in fact a deadly combination of malaria-bearing mosquitoes, anthrax spores, and *E. coli* in the water supply; he both remedies the situation and uses scientific methods to prove its origin.

Saddened by the limited knowledge he observed in so many of his own countrymen, Cajal attempted to diffuse his scientific thinking to uproot the prejudices and superstitions of his society. At times, Cajal's prose has been criticised as pretentiously lyrical and passé by self-styled literary experts. Nevertheless, Cajal was well aware that his main aim in life was not to produce literature; he wrote in his free time to take a break from his scientific duties and he never claimed to place himself on the level of Anton Chekhov. Measuring a self-confessed literary amateur by the standards of the great literary geniuses would be absurd. It is best to answer such critics with a quote from Cajal's natural man in his conversation with the artificial man: "Who would have ever thought of fighting Darwinists and positivists with arguments from Saint Thomas?"<sup>16</sup>

## Neuropoetry

*CASCA: He fell down in the market-place, and foam'd at mouth, and was speechless.*

*BRUTUS: 'Tis very like he hath the falling sickness*

*CASSIUS: No, Caesar hath it not: but you, and honest Casca, we have the falling sickness*<sup>18</sup>

William Shakespeare

While clear boundaries exist between fiction and non-fiction literature, making such a distinction in poetry is far more difficult, and possibly nonsensical. Its synthetic quality is perhaps the distinguishing feature of good poetry, which serves to awaken emotions and incite imagination using minimalistic expression.

In 1530, the Veronese doctor and humanist Girolamo Fracastoro completed his masterpiece, *Syphilis sive morbus gallicus*. This three-volume epic poem describes the syphilis epidemic that struck Europe in the Renaissance, provoking devastating skin lesions as well as neurological damage exacerbated by the use of mercury.<sup>19</sup>

Poetry lets authors experiment with its rhyme schemes, as Shakespeare did in his sonnets, and as we see in José Hierro's poems in *Emblemas Neurorradiológicos* [Neuro-radiology ensigns]: "Yesterday: Doctor, my head hurts./ Bleeding, leeches, purgatives; / nature will do the rest, and you'll soon be at your best. Today: Robot. . . Roger. Over. Let there be / oscillations. Flashing lines. Lights. C.2, B.3, Square root/ the diagnosis does compute".<sup>20</sup> In other occasions, blank verse can be used as a form of poetic expression.

Alzheimer disease has not escaped the notice of our contemporary poets, as we observe in these verses by Lostalé: “A slab of cold rays / has cloistered your eyes / in two white lakes of silence, / and your words have dropped away / from a precipice without memory”.<sup>21</sup> Emilio Pedro Gómez, inspired by his ailing mother, wrote these lines: “Thinking with an alien brain / out of her depth / her body overtakes her / the past passes by / much later than expected”.<sup>22</sup> Lastly, neuropoetry is not incompatible with humour: “—I often have headaches / every single time on the same side. / —Well, you should take them seriously / because there could be lurking / a terrible affliction / biding its time and waiting / to paralyse the body / on the contralateral or opposite side / from that of your headache / because there is a crossing / of the fibres in the brainstem / that descend from the cerebrum. / And on what side does it hurt? / —On the right side every time / —That means that it will strike you / on the other side of the body. / And the petrified civil servant / reacted quick as lightning / forcefully, spontaneously / moving to the right side / that which by force of habit / he’d been keeping on the left side / exclaiming in the meantime: / Bollocks to that! in perfect agreement”.<sup>23</sup>

## The intellectual aura

*And then I knew that the voice / of the spirits had been let in / —as intense as an epileptic aura— / and that no longer would I sing / alone*<sup>24</sup>

Anne Sexton

In the late 19th century, John Hughlings Jackson mentioned the ‘dreamy states’ that his French colleagues had referred to as ‘intellectual aura’ or *déjà vu*. In such states, the level of consciousness is a trance resembling paradoxical sleep, which the great English doctor was able to link to epilepsy originating in the temporal lobe (TLE).<sup>25</sup> The link between these psychological states and epilepsy, which Jackson intuitively understood, could only be demonstrated scientifically a century later. At that time, Bancaud and his team, using sophisticated neurophysiological tests, showed that spontaneous or stimulus-elicited activation of the temporal neocortex, the anterior hippocampus, and the amygdala reproduced these symptoms.<sup>26</sup>

Fiction literature has also contributed interesting parallels between Henry James’s scientifically plausible descriptions in *The Turn of the Screw* and Jackson’s clinical observations of these ‘dreamy states’.<sup>27</sup> Inspired by his own epilepsy, Dostoevsky was a pioneering figure in including such phenomena in his writings: “But strange to say, everything that had happened to me in that day seemed to me now, on waking, to be in the far, faraway past, as though I had long, long ago lived all that down”.<sup>28</sup> Dickens, in turn, recognised these sensations of *déjà vu* as common phenomena that anyone may experience every now and then: “We have all some experience of a feeling, that comes over us occasionally, of what we are saying and doing having been said and done before, in a remote time—of our having been surrounded, dim ages ago, by the same faces, objects, and circumstances—of our knowing perfectly what will be said next, as if we suddenly remembered it!”<sup>29</sup> High

frequency and intensity, secondary generalisation of these psychological paroxysms, and findings in such complementary tests as EEG or MRI distinguish pathological states from the normal physiological state in subjects with these psychological sensations. Patients with TLE still describe their condition in similar terms to Dostoevsky’s: “On the positive side, I sometimes experience a wonderfully heightened sense of perception and a deep sense of wonder in the world. It’s almost like a secret that I can see, but others can’t”.<sup>30</sup> However, the Russian novelist admitted that his experience more closely resembled mental fog with a false sense of clairvoyance: “These nebulous expressions seemed to him very clear, though too weak”.<sup>31</sup> In an extraordinary recreation of Dostoevsky’s intellectual aura, already mentioned in ‘Neurology and Literature’<sup>2</sup> in the passage on *The Idiot*, J. M. Coetzee imagines the moment just before the writer’s tonic-clonic seizure becomes generalised: “He shakes his head, tries to gather his wits. But words seem to have fled him. He stands before the Finn like an actor who has forgotten his lines. The silence lies like a weight upon the room. A weight or a peace, he thinks: what peace there would be if everything were to fall still, the birds of the air frozen in their flight, the great globe suspended in its orbit. A fit is certainly on its way: there is nothing he can do to hold it back. He savours the last of the stillness. What a pity the stillness cannot last forever! From far away comes a scream that must be his own. There will be a gnashing of teeth—the words flash before him; then there is an end”.<sup>32</sup>

If we return to the scene of ‘Bullet in the Brain’ which we left off in the first part of ‘Neurology and Literature’,<sup>2</sup> there is description of a near-death experience (NDE) evoked by synaptic discharge. These strong reminiscent sensations (dreamy states, intellectual auras, or *déjà vu*), experienced here by the imaginary character struck by the projectile, bring to mind descriptions by patients who have TLE or who have survived an NDE. “Once in the brain, that is, the bullet came under the mediation of brain time, which gave Anders plenty of leisure to contemplate the scene that, in a phrase he would have abhorred, ‘passed before his eyes’[. . .]The bullet is already in the brain; it won’t be outrun forever, or charmed to a halt. In the end it will do its work and leave the troubled skull behind, dragging its comet’s tail of memory and hope and talent and love into the marble hall of commerce”.<sup>33</sup> On the other hand, we also find the warning given by the protagonist of *The Road* to one of his assailants. “Because the bullet travels faster than sound. It will be in your brain before you can hear it. To hear it, you will need a frontal lobe and things with names like colliculus and temporal gyrus and you won’t have them anymore, They’ll just be soup”.<sup>34</sup> When we take down a patient’s history, it may be appropriate to recall an old dramatic principle: if a gun appears in the first act, it must go off by the last.

## Conclusions

Narrative-based medicine and the transformation of medical histories into novels by great authors provide a humanised perspective on disease which contributes to fostering empathy in doctor-patient communications. While there are no guarantees that good literature will make people any better or wiser, it may at times allow us to gain a more in-depth

understanding of what it is to live with a disease and its sequelae, and the patient's impression of that disease. Combining the paradigm of EBM with that of NBM currently poses a challenge for the field of neurology that is no less important than technological and scientific progress.

## Conflicts of interest

The author has no conflicts of interest to declare.

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## References

- Iniesta Quintero P. El Herbolario. Premio de Poesía Gavellar 1980. Reeditado en el poemario Almazara. Jaén: Ed Reca; 1999.
- Iniesta I. Neurología y Literatura. *Neurología*. 2010;25:507–14.
- Yourcenar M. Memorias de Adriano. Barcelona: Edhasa; 2002.
- García Gual C. (de la traducción). Tratados Hipocráticos. Madrid: Gredos Biblioteca Clásica; 1990.
- Bañuelos M. Manual de Patología Médica Tomo II, 2.<sup>a</sup> Ed Barcelona–Madrid: Editorial Científico Médica; 1993. p. 356.
- Sackett DL, Rosenberg WM, Gray JA, Haynes RB, Richardson WS. Evidence-based medicine: what it is and what it isn't. *BMJ*. 1996;312:71–2.
- Lain Entralgo P. La Historia Clínica. Madrid: Reedición Triacastela; 1998.
- Greenhalgh T, Hurwitz B. Narrative based medicine. *BMJ*. 1999;318:48–50.
- Judt T. Reportaje: prisionero de mi propio cuerpo (I) Noche 17/01/2010. In: Traducción de María Luisa Rodríguez Tapia; 2010. Available at: <http://www.elpais.com/articulo/Necrologicas/Prisionero/propio/cuerpo/elpepines/20100809/elpepines/1/Tes>
- Graeber M, Mehaein P. Reanalysis of the first case of Alzheimer's disease. *Eur Arch Psychiatry Clin Neurosci*. 1999;249:10–3.
- Iniesta I. The Syndrome of Don Quixote. *Eur J Neurol*. 2010;17 Suppl. 3:545.
- Evans M. The nightingale silenced. West Linton: National Library of Wales; 2009.
- Dostoyevski FM, In Frank J, Goldstein DI. Selected letters of Fyodor Dostoevsky. New Brunswick: Rutgers University Press; 1987.
- Romberg MH [EH Sieveking, trad.] A manual of the nervous diseases of man. Londres: Sydenham Society; 1853.
- Tsyppkin L. Verano en Baden-Baden. Madrid: Seix Barral; 2005.
- Ramón, Cajal S. Obras literarias completas. 3.<sup>a</sup> reedición Madrid: Aguilar SA; 1961.
- Porta Etesam J, Iniesta I. Special session: history of neurology-neurohistory tour. The footsteps of Cajal. In: 2nd Preliminary Programme, 12th EFNS Congress. 2008. p. 69.
- Shakespeare W. Julius Caesar. Londres: Penguin Popular Classics; 2001.
- Fracastoro G. Syphilis sive morbus Gallicus. Londres: Encyclopædia Britannica; 2009. Available at: [www.britannica.com/EBchecked/topic/578804/Syphilis-sive-morbus-Gallicus](http://www.britannica.com/EBchecked/topic/578804/Syphilis-sive-morbus-Gallicus)
- Hierro J. Emblemas Neurorradiológicos. Madrid: Endymion; 1995.
- Lostalé J. Alzheimer Blanco y Negro Cultural; 2003. p. 12.
- Gómez EP. La nieve horizontal de los vilanos. Zaragoza: Institución Fernando el Católico; 1996.
- Iniesta I. Consulta a orillas del Azahar. Inspirado en latroversalia de Pascual Iniesta Quintero. Concurso de poesía El Humor. Available at: <http://www.medicosescritoresyartistas.com/publicaciones/ConcursodePoesiaASEMEYA2010.doc>
- Sexton A. Transformations. In: The complete poems of Anne Sexton. New York: Marine Books; 1999. p. 229.
- Jackson JH. On a particular variety of epilepsy ("intellectual aura"), one case with symptoms of organic brain disease. *Brain*. 1888;11:179–207.
- Bancaud J, Brunet-Bourgin F, Chauvel P, Halgren E. Anatomical origin of déjà vu and vivid 'memories' in human temporal lobe epilepsy. *Brain*. 1994;117:71–90.
- Purdon Martin J. Neurology in fiction: the turn of the screw. *BMJ*. 1973;4:717–21.
- Dostoyevski FM. Apuntes del Subsuelo. Madrid: Alianza; 1991.
- Dickens C. David Copperfield. Barcelona: Juventud; 1941.
- Doctor, doctor: a double-feature exploring temporal lobe, epilepsy. *Epilepsy Today*. 2011;105:22–5.
- Dostoyevski FM. El Idiota. Madrid: Alianza; 1996.
- Coetzee JM. El maestro de Petersburgo. Madrid: Contemporánea; 2004.
- Wolff T. La Noche en Cuestión. Madrid: Ediciones Santillana; 2000.
- McCarthy C. La Carretera. Barcelona: Litografía Rosés; 2010.