

Advantageous liaisons

Patrik Vuilleumier

Department of Neuroscience, University Medical Centre and Campus Biotech, University of Geneva, Switzerland

Neuroscience and the historical vision of SANP

Our era is one where multi-, inter-, and even transdisciplinarity are praised and encouraged. Although these terms often tend to be overused and have become clichés, it is indisputable that neuroscience has emerged as a field crossing many traditional disciplinary boundaries, and its success has grown out of a fruitful combination of approaches and methods, ranging from medicine through to biology, psychology, engineering, computer sciences and more. Likewise, there is an ever increasing will to strengthen the links from basic research to clinical application and treatment (i.e., from bench to bedside), though to date this is still limited to promises in many cases. Remarkably, this journal has long foreseen the importance of these convergences, from one discipline to the other, and from science to clinics. This is directly exemplified by the title itself, which brings together neurology, psychiatry and psychotherapy, three distinct fields in current medicine but with rich interconnections and ultimately a common focus on the same organ (i.e., the brain).

In line with this historical vision of SANP, today we are seeing many novel and growing intersection points between disciplines within clinical neurosciences, generating innovative research and opening new avenues for the understanding, diagnosis, and treatment of brain diseases.

Deep brain stimulation (DBS) is not only a treatment option for movement disorders, but is now considered for severe depression or obsessive disorders as well [1]. Low stress resilience may cause psychological trouble, but also hippocampus and prefrontal atrophy contributing to age-related cognitive loss and dementia [2]. Thus, psychiatry and neurology which once upon a time were close sisters, but then followed distinct paths during the 20th century, are now again beginning to converge towards similar models and to share larger common grounds. Whereas psychiatric symptoms caused by brain injury are better recognised and understood [3], the neural substrates of psychiatric diseases are progressively being elucidated, leading us to redefine some diagnostic categories [4]. This convergence further testifies to the importance of a journal such as SANP, whose primary goal is to keep different neuro-disciplines connected with each other and with clinical practitioners.

“No-man’s land” between neurology and psychiatry

Yet there is a puzzling area situated along the interdisciplinary border zone between neurology and psychiatry, variably assimilated into either the former, or the latter, or both disciplines. This is the area of functional neurological symptoms (FNS), formerly known as conversion disorders (CD), and historically subsumed under the problematic term of “hysteria” [5, 6], which is reviewed and discussed in an interesting paper by Indrit Bègue in the current issue [7].

FNS/CD represent a condition whose clinical features provided some of the foundations for both neurology and psychiatry at the turn of the 20th century, and are still frequently encountered today by both neurologists and psychiatrists. However, rather than benefiting from this overlap between the two discipline territories, and thus engendering joined interest and doubled efforts to improve clinical care, FNS/CD have remained in a kind of no-man’s land between neurology and psychiatry. These symptoms are poorly understood, inefficiently managed, rarely researched and somewhat disdained by many physicians. Although they are frequent, costly and associated with a considerable burden for patients, their relatives and caregivers alike, FNS/CD symptoms are often considered as not “real” and serious [8]. Ironically, the term of “CD” was replaced by the new term of “FNS” in the latest version of the DSM [9], with the laudable aim to abolish a conceptual divide between mind and brain, and to keep away from postulating purely psychological (or purely biological) explanations for the symptoms. But in fact, there is no comprehensive or generally accepted model of FNS/CD, neither in terms of psychodynamic mechanisms nor in relation to specific neuroanatomical substrates, and even less so in terms of potential relationships between the former and the latter [10]. Moreover, in practice, patients with FNS/CD are typically referred back and forth between neurologists to psychiatrists, with a coordinated multidisciplinary management being judiciously recommended [11], but rarely implemented. Hence, FNS/CD appears to occupy some empty space between psychiatry and neurology, rather than to constitute a valued bridge.

The scarcity of brain research on FNS/CD is actually striking given the very nature of these symptoms, which affect the functioning of neural systems with

well-established and localised substrates. This is in sharp contrast to several other neuropsychiatric diseases whose cardinal symptoms are essentially characterised by “mental” phenomena (such as depression, anxiety, compulsive thoughts), but which have nonetheless been explored by countless studies in neuroscience, using various imaging techniques and animal models in order to pinpoint the underlying brain circuits. In comparison, FNS/CD have been investigated by a small number of functional magnetic resonance imaging (fMRI) or positron emission tomography (PET) studies, often conducted in small patient groups [12]. Therefore, the exact neuroanatomical bases of these neurological symptoms actually remain poorly known – despite some evidence that functional changes (and possibly subtle volumetric structural changes) may occur in brain pathways normally mediating the sensory or motor processes that are affected by FNS/CD, as well as in other brain areas [6]. The behavioural and neuroimaging work described by Indrit Bègue in the current issue [7] is therefore novel and important in shedding light on the mind-brain relationships in FNS/CD. To account for how sensory or motor functions may fail despite apparently preserved neural pathways, the author points to disturbances in their integration with and control by other higher-level systems responsible for self-monitoring (metacognition), emotion regulation and memory. These functional brain anomalies might not only underlie the abnormal subjective experience of their own movement or perception in patients with FNS/CD, but also give new clues to unveiling the possible causes of these symptoms and identifying the much sought-after links with psychodynamic accounts. It is striking that findings of “abnormal” activation in memory- and emotion-related areas during voluntary movements in patients with motor FNS/CD appear to converge with a possible role for past trauma history and/or particular affective appraisals of personally relevant events in autobiographic memory.

Undoubtedly, additional research is needed to better elucidate these mechanisms and determine their implication in other, nonmotor FNS/CD. In any case, the approach taken in such studies that integrate clinical phenomenology of FNS/CD with models from cognitive neuroscience is a valuable step to actualise and reinforce a fruitful liaison between neurology and psychiatry, in both theoretical models and clinical practice. Ultimately, by generating new hypothesis (and possibly distinguishing different patient groups), this work should also help guide new therapeutic options for these patients, whose management remains difficult and often inefficient.

Clinical research highlight

The paper by Bègue also introduces a new feature in our journal that illustrates another important liaison in clinical neurosciences. In addition to highlighting current knowledge and research results (including their own) in a given neuropsychiatric field, the authors can take the opportunity to briefly describe an ongoing clinical research project taking place in Switzerland for which patients will be recruited.

Their paper can thus include an information box briefly summarising the inclusion criteria for patients to participate in the research, the goal and methods of the study, and the contact address of investigators. This information can then be kept by physicians interested in informing their patients about the possibility to participate in research, and/or given directly to patients.

Authors can take the opportunity to briefly describe an ongoing clinical research project taking place in Switzerland for which patients will be recruited.

We believe that this feature can promote another type of fruitful liaison within the neurosciences, namely, between researchers in academic centres and clinicians on the practice terrain. Doing so should help recruit larger and more representative cohorts of patients, improving the reliability and relevance of research in relation to patients seen in everyday clinics. Also, strengthening the connections of both practitioners and patients in the community with ongoing research gives the opportunity to all actors in healthcare systems to contribute to scientific efforts, and may allow busy clinicians to offer their patients access to additional care protocols.

Through the new feature clinical research highlight, the journal can further extend its mission to promote communication and facilitate knowledge sharing, not only between disciplines, but also between researchers and clinicians.

Unlike the “dangerous liaisons” depicted in the famous French novel by Choderlos de Laclos, the multiple liaisons established between different partners and fields in neuroscience are key to medical advances. Generous and advantageous liaisons are permitted by the rich diversity of contributors to this journal. We hope that clinical scientists will exploit this possibility offered by SANP to highlight their current research and that clinical practitioners will appreciate the ability to join research efforts in their own manner.

References

The full list of references is included in the online version of the article at <https://doi.org/10.4414/sanp.2018.00618>.