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EDITORIAL

Epilepsia®

An interview with Suejen Perani, 2019 *Epilepsia* Prize Winner for Clinical Research

1 | WHO ARE YOU?

I define myself a scientist with strong business skills. I came from the world of psychological science from my BA, and then I have moved to neuroscience. Indeed, I have an MSc in cognitive neuroscience and a PhD in clinical neuroscience. After 8 years in the field of research and epilepsy, I have recently moved to the field of business in neuroscience.

2 | WHAT GOT YOU INTERESTED IN EPILEPSY RESEARCH?

My adventure in the world of epilepsy started during my MSc, where I met Dr David Carmichael at University College London. I picked him as my supervisor because he is the expert in the combination of electroencephalography (EEG) and magnetic resonance imaging (MRI). At that time, I was interested in becoming familiar with how these techniques could be used simultaneously. At the same time as learning about two neuroscience techniques, I also learnt about one of the main applications: epilepsy. Seeing how unpredictable seizures are, and the impact that epilepsy has on small children at Great Ormond Street Hospital in London, made me determined to be part of a community that can help understanding this condition. I was puzzled that epilepsy could be such an old condition and yet we still do not understand it completely. I wanted to help! So, I got a studentship for my PhD via the Biomedical Research Centre at King's College London, where I met Professor Mark Richardson. Given my amazing collaboration with Dr Carmichael, I decided to create a joint force between King's College London and University College London to develop ideas for future research in epilepsy.

3 | EXPLAIN FOR OUR GENERAL READERSHIP WHAT QUESTION YOUR STUDY ADDRESSED AND HOW YOU GOT ABOUT DESIGNING YOUR STUDY?

I became aware that many imaging studies examined people with epilepsy already on treatment, hence disambiguating treatment effects and effects of the condition is difficult. So, I decided to try to explore what was never studied before (easy tasks are not appealing to me): the brain of people with generalized epilepsy before starting their treatment, at the onset of their epilepsy. There is no information that can guide us to why the same medication works for some and not for somebody else with the same type of epilepsy. Genetics is likely to contribute, but I wanted to give an answer to this question using brain imaging. However, to answer such questions, we needed a dataset that did not exist and seemed impossible to find. Due to the logistics of genetic generalized epilepsy (GGE) diagnoses, medications are administered immediately, leaving a very brief time window to collect data from those patients before their first intake of medication. I made it possible to recruit and scan in this brief window, and collected data from those patients. (If you want to know how, contact me!) So, we now have one of the few available datasets of this kind. Contact me, I will be happy to share my secrets.

4 | WHAT WERE THE RESULTS AND HOW DO YOU INTERPRET YOUR FINDINGS?

In this study, we were able to start exploring the status of the brain in patients newly diagnosed with GGE and who had

never been on any brain-active medication. Among other measurements, we measured the amount of gray matter in the brain in both patients and healthy controls. The only area of differences was the thalamus, found reduced in patients. This suggested that thalamus in patients presents with structural abnormalities that are disease-related and not a consequence of seizure duration or medication but are present at the initial onset of GGE.

5 | WHAT NEXT STEPS IN EPILEPSY RESEARCH ARE YOU TAKING AND WHAT ARE YOUR CAREER GOALS?

Given my current partial involvement with academia, the Richardson Lab (http://epilepsy-london.org/) and I have focused their workforce in studying the functional connectivity of the brain using functional MRI (fMRI) in this group of subjects and in patients with established GGE.[1,2] We found that the functional brain network state measured with fMRI evolves slowly prior to episodes of spike-wave discharges, whereas the EEG onset appears abruptly. We also found that the functional brain network in the interictal state, remote from spike-wave discharges, differs between GGE patients and healthy control subjects. Furthermore, unaffected first-degree relatives of GGE patients also differ from healthy controls and are similar to GGE patients, suggesting that brain network features in GGE are an inherited endophenotype. Future work will focus on better understanding the mechanisms of these functional network abnormalities. Also, the dataset contains neuroimaging data acquired longitudinally 6 months after first drug intake. So, future work will also explore disease progression.

Regarding my career goals, even though I have left the world of pure science, I am still involved in supporting the Richardson Lab team with this dataset and it is my will to continue to support the research field. From one end, I took my skills in neurophysiological techniques into the commercial sector, in a company that specializes in EEG systems for research. I am using my research training to contribute to bringing an exceptional product to the benefit of researchers—and ultimately to the benefit of people with epilepsy. On the other hand, I would like to share my recruitment strategy with scientists who are ambitious enough to collect rare populations like I did. I wished I had somebody who could guide me. This is why I am currently offering a consultancy service to ensure productive recruitment.

6 | WHAT DOES THE *EPILEPSIA* PRIZE MEAN FOR YOU, YOUR LABORATORY, YOUR RESEARCH INSTITUTE, AND YOUR FUTURE?

This dataset and this work have been the product of my entire PhD. Receiving this prize from *Epilepsia* is a wonderful recognition that my work was really meaningful and useful. I am extremely grateful for that recognition. I know that my supervisors, Dr Carmichael and Prof Richardson, are delighted and humbled to have our work recognized, and hope that having a PhD student win such a prize will attract many more enthusiastic students to their lab.

As last year I decided to leave the world of research, this precious dataset reported in *Epilepsia* is my contribution to the science of epilepsy. I left it in marvelous hands with Prof Richardson and Dr Carmichael at King's College London, who will explore it fully. Contact them if you would like to work with it.

Read the winning article, "Thalamic volume reduction in drug-naive patients with new-onset genetic generalized epilepsy."

Astrid Nehlig, Co-Editor-in-Chief, *Epilepsia*
Michael Sperling, Co-Editor-in-Chief, *Epilepsia*
Emails: nehliga@unistra.fr; michael.sperling@jefferson.edu

REFERENCES

1. Tangwiriyasakul C, Perani S, Centeno M, et al. Dynamic brain network states in human generalised spike-wave discharges. Brain. 2018;141:2981–94.
2. Tangwiriyasakul C, Perani P, Abela E, Carmichael DW, Richardson MP. Sensorimotor network hypersynchrony as an endophenotype in families with genetic generalized epilepsy: a resting state fMRI study. Epilepsia. 2019;60:e14–9.