Pediatric Neurology 100 (2019) 1–2

Contents lists available at ScienceDirect

Pediatric Neurology

journal homepage: www.elsevier.com/locate/pnu

Editorial

# Short Takes

Steven G. Pavlakis, MD *

*Department of Neurology, SUNY Downstate Medical Center, Brooklyn, NY*

**Sudden Unexpected Death in Epilepsy Among Patients with Benign Childhood Epilepsy with Centrotemporal Spikes. Doumlele BA, Friedman D, Buchatter J et al. JAMA Neurol. 2017; 74(6):645-649**

**Brief Summary:** This article attempts to define whether children with benign childhood epilepsy with centrotemporal spikes (BECTS) have a high incidence of sudden unexpected death in epilepsy (SUDEP). To do this, the authors analyzed data from the North American SUDEP Repository, a clinical and biospecimen repository that promotes SUDEP research.

The authors found three boys with BECTS who had either likely (two) or probable (one) SUDEP. The boys ranged in age from nine to 13 years and had variable epilepsy phenotypes, between a few seizures to many seizures. One just had "focal" seizures. None of the patients were on anti-seizure medication. The authors conclude that SUDEP is rare in BECTS; but anticonvulsant treatment should, at the very least, be discussed with the parents.

**Bottom line:** BECTS is a relatively common condition that has been traditionally left untreated with chronic anticonvulsants. Here three untreated boys died of SUDEP. Having said this, one does not know the incidence of sudden death in a nonseizure population versus that in a BECTS population, but this study does give us pause.

I was not aware of this article until recently when a speaker mentioned it in grand rounds. In my 40-year career, I have only had one patient who may have died of SUDEP. This was a 10-year-old boy with BECTS who had several generalized tonic-clonic seizures during sleep. The boy was not treated with anticonvulsant as per the recommendations of several neurological consultations.

With the recent increased understanding of SUDEP, this one boy with possible SUDEP has made me rethink treating patients with BECTS. There is no good prospective randomized treatment trial attempting to determine the best choice anticonvulsant. As SUDEP is relatively rare, any side effect of a potential anticonvulsant should be assessed carefully in treatment trials. In this small sample, the patients had multiple different seizure types and severity, so there is not even a hint of an at-risk BECTS phenotype.

Suffice it to say, here there is some suggestion (and personal experience) that SUDEP might happen in BECTS. I for one have been discussing treatment with my patients with BECTS and might advocate initiation of anticonvulsants? I just wish we had better data in making decisions on a condition characterized as "benign." I also think more information on an at-risk SUDEP phenotype in BECTS would certainly make our lives easier. For now, do we need to discuss with parents and go over options, both whether to treat and with which anticonvulsant?

**Large teams develop and small teams disrupt science and technology. Wu L, Wang D, Evans JA. Nature 2019 DOI:10.1038/s41586-019-0941-9**

**Brief Summary:** The authors attempt to determine whether small teams or solitary scientists, compared with larger teams, are more likely to produce disruptive work that changes the course of science or technology.

Wu and colleagues analyzed citations in 42 million articles published after 1954, five million patents since 1976, and 16 million software projects since 2011. The investigators determined the number of citations of the index articles after publication and compared this to the number of citations of the citations referenced in the index article by later authors.

The investigators found that disruptive science was associated with many later citations, but few of the citations published in the index article were ever cited again. Less disruptive articles—those that made incremental strides—resulted in many later citations that referenced both the index article and those articles cited in the original work.

The authors found that the disruptive articles, those that resulted in many later citations but few citations of work that preceded the index article, were more likely to be performed by small teams or solitary authors. Large teams were more likely to result in many citations both of the index paper and the citations cited in the index article. The work of large teams tended to be more incremental.

**Bottom line:** Small teams of researchers do more innovative work than larger ones, according to an article reviewing the Nature article entitled *Can Big Science Be Too Big?* NYT Feb 13, 2019 by Benedict Carey. Carey opined that smaller teams are more disruptive and more likely to change the course of science and technology.

By analyzing citation patterns of work, the authors developed a disruptive index based on citation patterns; which they

Editor's note: *Short Takes* offers a brief analysis by Steven G. Pavlakis of selected articles that may be of interest to child neurologists. Articles that strike the fancy of the analyst or the editors are selected for inclusion, but we welcome suggestions.

* Communications should be addressed to: Pavlakis; Department of Neurology; SUNY Downstate Medical Center; 445 Lenox Road, Brooklyn, NY 11203.

*E-mail address:* Steven.pavlakis@downstate.edu.

https://doi.org/10.1016/j.pediatrneurol.2019.05.009

determined was more likely performed by individuals or small groups.

As the reader may recall, I have been railing against the cost and firepower of large National Institutes of Health-funded studies. I was speaking against some big science without data; it was only my opinion until now. Here there are data that innovations come from small groups or solitary individuals. Big science is more likely to be incremental, so is big science worth the cost? Is it not better to gamble on multiple smaller groups that are more likely innovative than large groups that collect lots of data, but move the needle forward only a little?

I think the National Institutes of Health should gamble more rather than tying up resources on large projects that always work to some extent, so no one gets blamed. Smaller projects are riskier and more likely to fail, but the one that works changes the course of history. Big science is more likely to give some results, but improvement in understanding is usually incremental and we miss out on funding potential true innovators. So can big science be too big? I think the answer is that big science is not *a priori* bad, but it drains resources from potentially more innovative investigators that society should gamble on. Some projects need to be done with multiple collaborators but society should temper the costs of missed opportunities to fund innovation.

So the final question is why are solitary scientists or small groups more innovative? I am not sure, but at least in my experience, big science is safer, for both the investigators and funding agencies, but is riddled by group thought. Big science sometimes becomes a self-perpetuating bureaucracy onto itself, making limited strides in protecting its very existence.