Carphology by A Fo Ben

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RECYCLING CENTRE

Why do some people with epilepsy have seizures that seem to phase with the lunar cycle? Don't blame it on the sunshine, don't blame it on the moonlight, don't blame it on the atmospheric pressure…don't even blame it on the menstrual cycle. A research team identified month-long oscillatory patterns with a NeuroPace neurostimulator monitoring intracranial EEG in 37 people. The rhythmical nature of interictal epileptiform activity and seizures run on an individualised cycle of 20 to 30 days, which is robust and relatively stable for up to 10 years in both men and women (figure 1). The immediate next question—what is driving these rhythms and would modulating it help seizure control—is unanswered.

Nat Commun. 2018;9(1):88.

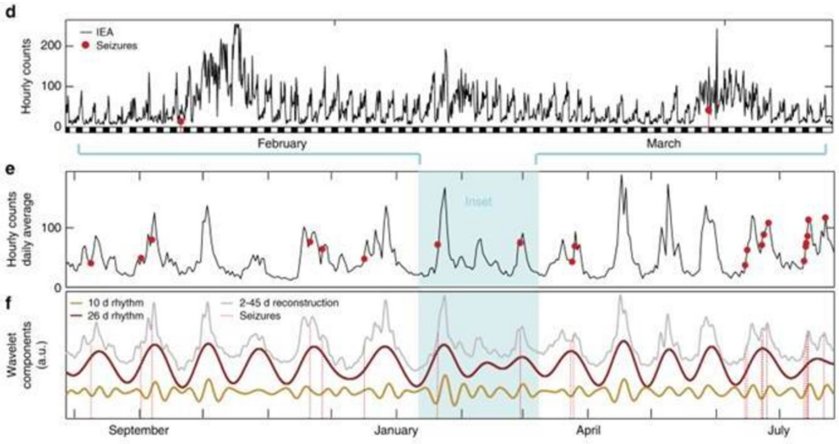

Figure 1 Circadian and multidien rhythms and preferential timing of seizures. Hourly (A) and daily (B) fluctuation in interictal epileptic activity (IEA) in one subject over 2 and 12 months. Red dots indicate seizures. (C) Wavelet decomposition revealing two component multidien rhythms with periodicities of 10 and 26 days.

F-A-S-T LIVING

The new (2018) stroke guidelines launched at the International Stroke Conference in Los Angeles provide a series of challenges to those who help organise stroke services in the UK. The new recommendations include a door-to-needle time for intravenous alteplase of an hour (or less) in more than half of cases (and note that 45 min or less may be a better target); they suggest a target of 20 min for 'door-to-scan time'; thrombolysis guided by telemedicine may be safe and beneficial in some centres; for 'mild stroke' presenting at 3–4.5 hours, it may be reasonable to treat with intravenous alteplase; and the treatment window for mechanical thrombectomy has been increased from 6 hours to up to 24 hours for selected patients. With great evidence comes great responsibility to deliver these treatments.

HOT OR NOT?

In us run-of-the-mill endotherms, we generate most of our heat from our mitochondria—and from this we extrapolate that they probably run warmer than our resting physiological temperature. But how much hotter? A recent study using thermosensitive mitochondrial-targeted fluorescent dye (Mito thermo yellow) suggests that these little boiler houses could be cooking away at up to 50°C. This was tested in human embryonic kidney 293 cells and primary skin fibroblast culture in a water bath. Respiratory chain activities measured in intact mitochondria were increased up to threefold when assayed at near 50°C. The finding is startling and controversial, fuelling the fires of debate.

PLoS Biol, 2018;16(1):e2003992.

ZAP! NO KAPOW

Breaking news! Scientists tell us that electrocuting your brain is not, I repeat not, a smart move. A study of 123 older adults who underwent transcranial direct-current stimulation failed to identify any boost to working memory. Indeed in a supporting meta-analysis of 266 people, they show that genuine therapy was not a great deal better than sham therapy. This is great news for A Fo Ben as I am a staunch advocate of sham therapy—and have been running a trial of clinical efficacy of standard treatment (seeing me in clinic) or placebo (my junior registrar) for quite some time now.

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Competing interests None declared.

Provenance and peer review Commissioned; internally peer reviewed.