First step to revealing children at risk of developing epilepsy

Findings from an international genetic study involving the University of Melbourne means it may now be possible to predict which children are more likely to develop epilepsy later in life based on their genotype. The study looked at febrile seizures in 7636 children from Denmark and Australia, identifying seven variant genes that researchers say now substantially improve our understanding of the underlying causes of seizures in young children. While most febrile seizures are benign and self-limiting with no recurrence, about 7% of children who have the seizures will later develop epilepsy. **Published in *Brain***, Professor Sam Berkovic and fellow University of Melbourne co-authors, Associate Professor Michael Hildebrand and Professor Ingrid Scheffer, with colleagues from Denmark's Statens Serum Institut, said three of the new genes produce presynaptic proteins that may turn out to be targets for new drug therapies, which would be particularly important for children who go on to develop epilepsy. "The link between febrile seizures and epilepsy has been known for years but its genetic underpinnings are only now emerging. *GABRG2*, a neurotransmitter receptor gene we discovered, is well established as an important gene for epilepsy associated with febrile seizures, and this new clear link to febrile seizures prior to development of epilepsy is another important piece in this puzzle." Lead author, Dr Bjarke Feenstra, from SSI, said the study had also revealed genes that could identify the development of fevers in mammals. "The connections to fever response are intriguing. We hypothesise that genetic changes that affect the way the prostaglandin receptor (*PTGER3*) and interleukin (*IL10*) immune system genes normally function in mediating response to infections may lead to a more pronounced fever, which in turn could increase the susceptibility of children suffering febrile seizures."

https://academic.oup.com/brain/advance-article/doi/10.1093/brain/awab260/6503584

Pinpointing disease progression in ALS

An international collaboration led by Flinders University has identified a potential biomarker for amyotrophic lateral sclerosis (ALS), also known as motor neuron disease (MND), providing a way to test the effectiveness of future clinical trials. **Published in the *European Journal of Neurology*,** the team identified that the concentration of neopterin – a small molecule released by immune cells in response to inflammation and secreted in urine – increased as ALS/MND progressed. The research looked at 46 people with ALS/MND and 21 healthy controls, using a number of biological and neurological tests and then followed the progress of 19 people with ALS/MND, examining urine samples and clinical data over a 2–3year period. The authors found the concentration of neopterin was higher in those with ALS/MND, with the concentration also increasing each month as the disease progresses. This novel biomarker adds to another urinary biomarker, p75ECD, previously identified by the research team as being able to identify ALS/MND disease progression. The researchers say both biomarkers can be used as quantifiable measures of the severity of motor neuron degeneration in ALS and in future treatment trials. "In undertaking research to treat MND, it's important we have a way of identifying its progress and to see if the treatment is working," they said. "Both biomarkers have the potential to be used in future phase 2 and 3 clinical trials as a way of determining if a drug treatment is working. Furthermore, as neopterin is produced by immune cells, it could also be useful in trials that target the immune system."

https://onlinelibrary.wiley.com/doi/10.1111/ene.15237

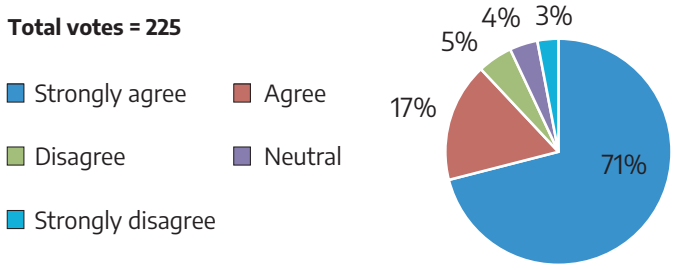
doi:10.5694/mja2.51401

InSight+ Poll

Empowered by AMPCo

Rapid antigen testing for asymptomatic people should be made available to the public

Total votes = 225



Take part in next week's poll on: https://insightplus.mja.com.au/

MJA PODCASTS

Professor John Massie is the Clinical Director of the Children's Bioethics Centre at the Royal Children's Hospital, Melbourne, and the University of Melbourne. He discusses the ethics and legalities of vaccinating children for COVID-19 against the wishes of their parents, to accompany his co-authored Ethics and Law article published online on 24 January 2022.

Associate Professor Amirali Popat is with the University of Queensland's School of Pharmacy. **Liam Krueger** is a PhD student. They discuss the potential of 3D printing to personalise drug delivery and to facilitate medication compliance, to accompany their Perspective published online on 7 February 2022.

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FEBRUARY

7 *Podcast:* Associate Professor Amirali Popat is with the University of Queensland's School of Pharmacy. Liam Krueger is a PhD student. They discuss the potential of 3D printing to personalise drug delivery and to facilitate medication compliance

7 *Meta-analysis:* Efficacy, safety, and dose-dependence of the analgesic effects of opioid therapy for people with osteoarthritis
Abdel Shaheed et al; https://doi.org/10.5694/mja2.51392

JANUARY

31 *Podcast:* Dr Norman Swan is the producer and presenter of the *ABC Health Report* and *Coronacast*. He talks about how communication and messaging about COVID-19 have changed over the past 2 years, and how that affects how we "live with" the virus

31 *Research:* Hospital-acquired complications: the relative importance of hospital- and patient-related factors
Duke et al; https://doi.org/10.5694/mja2.51375

31 *Research:* Medication not accounted for in hospital electronic medication administration records: a retrospective observational study
Walker et al; https://doi.org/10.5694/mja2.51370

24 *Ethics and law:* Vaccination of young people from 12 years of age for COVID-19 against parents' wishes
Massie et al; https://doi.org/10.5694/mja2.51372

24 *Podcast:* Professor John Massie is the Clinical Director of the Children's Bioethics Centre at the Royal Children's Hospital, Melbourne, and the University of Melbourne

24 *Narrative review:* Potential indirect impacts of the COVID-19 pandemic on children using a community child health lens
Goldfeld et al; https://doi.org/10.5694/mja2.51368

17 *Research letter:* Acute rheumatic fever and rheumatic heart disease in Victoria, 2006–18
Oliver et al; https://doi.org/10.5694/mja2.51374

17 *Research:* Competing risks of death or dialysis in an Australian cohort with severe chronic kidney disease
Jose et al; https://doi.org/10.5694/mja2.51361

17 *Podcast:* Dr Manjula O'Connor is a consultant psychiatrist, Honorary Senior Fellow at the University of Melbourne, and Adjunct Professor at the UNSW Sydney. She talks about the burden of dowry abuse

DECEMBER

13: *Ethics and law:* Consent for treatment of gender dysphoria in young persons: evolving clinical and legal frameworks
Ouliaris; https://doi.org/10.5694/mja2.51353

13: *Research letter:* Second SARS-CoV-2 infections twelve months after initial infections in Australia, confirmed by genomic analysis
Lane et al; https://doi.org/10.5694/mja2.51352