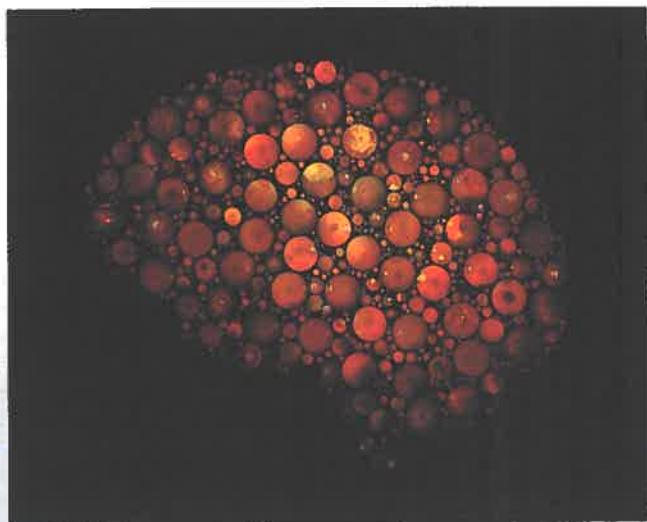


BRAIN

A JOURNAL OF NEUROLOGY



Cover image: Asymmetric fundal appearances between eyes can accurately be quantified with optical coherence tomography, which this study from the UK BioBank suggests is of diagnostic value in multiple sclerosis. From Petzold et al. Retinal asymmetry in multiple sclerosis. Pp. 224–235. Illustration by Jon Brett (Eye Research Group, Oxford).

Contents

Editorial

An uncertain year: looking back, moving forwards

M. Husain

I

Essay

Bird watching on the asphalt

A. J. Lees

2

Scientific Commentaries

Neuregulin therapy for multiple sclerosis: an each-way bet?

T. J. Kilpatrick and M. D. Binder

6

Pathological brain ageing in epilepsy and dementia: two sides of the same coin?

A. Sen and M. Romoli

9

Integrating events in the disintegration of Alzheimer's disease

W. Jagust

11

Concatenating plasma p-tau to Alzheimer's disease

B. M. Tijms and C. E. Teunissen

14

Review Article

The synapse in traumatic brain injury

A. A. B. Jamjoom, J. Rhodes, P. J. D. Andrews and S. G. N. Grant

18



Update

Developmental and epileptic encephalopathies: what we do and do not know

N. Specchio and P. Curatolo

32

Report

Subthalamic stimulation impairs stopping of ongoing movements

R. Lofredi, G. C. Auernig, F. Irmen, J. Nieweler, W.-J. Neumann, A. Horn, G.-H. Schneider and A. A. Kühn

44

Original Articles

Platelet-derived growth factor beta is a potent inflammatory driver in paediatric high-grade glioma

J. L. Ross, Z. Chen, C. J. Herting, Y. Grabovska, F. Szulzewsky, M. Puigdelloses, L. Monterroza, J. Switchenko, N. R. Vadhvani, P. J. Cimino, A. Mackay, C. Jones, R. D. Read, T. J. MacDonald, M. Schniederjan, O. J. Becher and D. Hambardzumyan

53

From biomechanics to pathology: predicting axonal injury from patterns of strain after traumatic brain injury

C. K. Donat, M. Yanez Lopez, M. Sastre, N. Baxan, M. Goldfinger, R. Seamber, F. Müller, P. Davies, P. Hellyer, P. Siegkas, S. Gentleman, D. J. Sharp and M. Ghajari

70

Detecting axonal injury in individual patients after traumatic brain injury

A. E. Jolly, M. Bäläet, A. Azor, D. Friedland, S. Sandrone, N. S. N. Graham, K. Zimmerman and D. J. Sharp

92

Abnormal dorsal attention network activation in memory impairment after traumatic brain injury

E.-J. Mallas, S. De Simoni, G. Scott, A. E. Jolly, A. Hampshire, L. M. Li, N. J. Bourke, S. A. G. Roberts, N. Gorgoraptis and D. J. Sharp

114

Vestibular agnosia in traumatic brain injury and its link to imbalance

E. Calzolari, M. Chepishcheva, R. M. Smith, M. Mahmud, P. J. Hellyer, V. Tahtis, Q. Arshad, A. Jolly, M. Wilson, H. Rust, D. J. Sharp and B. M. Seemungal

128

Acute and non-resolving inflammation associate with oxidative injury after human spinal cord injury

T. Zrzavy, C. Schwaiger, I. Wimmer, T. Berger, J. Bauer, O. Butovsky, J. M. Schwab, H. Lassmann and R. Höftberger

144

Neuregulin-1 beta 1 is implicated in pathogenesis of multiple sclerosis

H. Kataria, C. G. Hart, A. Alizadeh, M. Cossoy, D. K. Kaushik, C. N. Bernstein, R. A. Marrie, V. W. Yong and S. Karimi-Abdolrezaee

162

In vivo gradients of thalamic damage in paediatric multiple sclerosis: a window into pathology

E. De Meo, L. Storelli, L. Moiola, A. Ghezzi, P. Veggioni, M. Filippi and M. A. Rocca

186

Quantitative spinal cord MRI in MOG-antibody disease, neuromyelitis optica and multiple sclerosis

R. Mariano, S. Messina, A. Roca-Fernandez, M. I. Leite, Y. Kong and J. A. Palace

198

Non-invasive quantification of inflammation, axonal and myelin injury in multiple sclerosis

S. Schiavi, M. Petracca, P. Sun, L. Fleysheer, S. Cocozza, M. M. El Mendili, A. Signori, J. S. Babb, K. Podranski, S.-K. Song and M. Inglesse

213

Retinal asymmetry in multiple sclerosis

A. Petzold, S. Y. L. Chua, A. P. Khawaja, P. A. Keane, P. T. Khaw, C. Reisman, B. Dhillon, N. G. Strouthidis, UK Biobank Eye and Vision Consortium,

P. J. Foster and P. J. Patel

224

Atrophy and cognitive profiles in older adults with temporal lobe epilepsy are similar to mild cognitive impairment

E. Kaestner, A. Reyes, A. Chen, J. Rao, A. C. Macari, J. Y. Choi, D. Qiu, K. Hewitt, Z. I. Wang, D. L. Drane, B. Hermann, R. M. Busch, V. Punia and

C. R. McDonald for the Alzheimer's Disease Neuroimaging Initiative

236

Dendritic pathology, spine loss and synaptic reorganization in human cortex from epilepsy patients

L. Rossini, D. De Santis, R. R. Mauceri, C. Tesoriero, M. Bentivoglio, E. Maderna, A. Maiorana, F. Deleo, M. de Curtis, G. Tringali, M. Cossu,

G. Tumminelli, M. Bramero, R. Spreafico, L. Tassi and R. Garbelli

251

¹⁸F-AV-1451 positron emission tomography in neuropathological substrates of corticobasal syndrome

A. E. Goodheart, J. J. Locascio, W. R. Samore, J. A. Collins, M. Brickhouse, A. Schultz, A. Touroutoglou, K. A. Johnson, M. P. Frosch, J. H. Growdon,

B. C. Dickerson and S. N. Gomperts

266

Dopaminergic imaging and clinical predictors for phenoconversion of REM sleep behaviour disorder

D. Arnaldi, A. Chincarini, M. T. Hu, K. Sonka, B. Boeve, T. Miyamoto, M. Puligheddu, V. C. De Cock, M. Terzaghi, G. Plazzi, N. Tachibana, S. Morbelli,

M. Rolinski, P. Dusek, V. Lowe, M. Miyamoto, M. Figorilli, D. d. Verbizier, I. Bossert, E. Antelmi, R. Meli, T. R. Barber, J. Trnka, T. Miyagawa, A. Serra,

F. Pizza, M. Bauckneht, K. M. Bradley, D. Zogala, D. R. McGowan, L. Jordan, R. Manni and F. Nobili

278

Alzheimer's disease brain-derived extracellular vesicles spread tau pathology in interneurons

Z. Ruan, D. Pathak, S. Venkatesan Kalavai, A. Yoshii-Kitahara, S. Muraoka, N. Bhatt, K. Takamatsu-Yukawa, J. Hu, Y. Wang, S. Hersch, M. Ericsson,

S. Gorantla, H. E. Gendelman, R. Kaye, S. Ikezu, J. I. Luebke and T. Ikezu

288

Untangling the association of amyloid- β and tau with synaptic and axonal loss in Alzheimer's disease

J. B. Pereira, S. Janelidze, R. Ossenkoppele, H. Kvartsberg, A. Brinkmalm, N. Mattsson-Carlgen, E. Stomrud, R. Smith, H. Zetterberg, K. Blennow and O. Hansson

310

Time course of phosphorylated-tau181 in blood across the Alzheimer's disease spectrum

A. Moscoso, M. J. Grothe, N. J. Ashton, T. K. Karikari, J. L. Rodriguez, A. Snellman, M. Suárez-Calvet, H. Zetterberg, K. Blennow and M. Schöll for the Alzheimer's Disease Neuroimaging Initiative

325

How do the blind 'see'? The role of spontaneous brain activity in self-generated perception

A. Hahamy, M. Wilf, B. Rosin, M. Behrmann and R. Malach

340

Letters to the Editor

Assessing the *NOTCH2NLC* GGC expansion in essential tremor patients from eastern China

Y. Yan, L. Cao, L. Gu, B. Zhang, C. Xu, J. Pu, J. Tian, X. Yin, B. Zhang and G. Zhao

e1

Reply: Assessing the *NOTCH2NLC* GGC expansion in essential tremor patients from eastern China

Q.-Y. Sun, J.-F. Guo and B.-S. Tang

e2

PSAP intronic variants around saposin D domain and Parkinson's disease

Z.-H. Lin, Y. Ruan, N.-J. Xue, Y. Fang, J.-L. Pu and B.-R. Zhang

e3

Reply: PSAP intronic variants around saposin D domain and Parkinson's disease

Y. Oji, T. Hatano, M. Funayama and N. Hattori

e4

Lesion network mapping: where do we go from here?

A. D. Boes

e5

Reply: Lesion network mapping: where do we go from here?

A. Salvalaggio, L. Pini, M. De Filippo De Grazia, M. Thiebaut De Schotten, M. Zorzi and M. Corbetta

e6

Tissue-resident CD8⁺ memory T cells in multiple sclerosis

R. Hohlfeld, E. Beltran, L. A. Gerdes and K. Dornmair

e7

Reply: Tissue-resident CD8⁺ memory T cells in multiple sclerosis

J. Smolders, N. L. Fransen, I. Huitinga and J. Hamann

e8

Association analysis of PSAP variants in Parkinson's disease patients

Y. X. Chao, B. Lee, E. Y. Ng, M. M. Lian, E. G. Y. Chew, M. Tandiono, Z. Li, C. C. Khor, P. Kumar, L. C. S. Tan, J. N. Foo and E.-K. Tan

e9

Reply: Association analysis of PSAP variants in Parkinson's disease patients

Y. Oji, T. Hatano, M. Funayama and N. Hattori

e10

A novel *de novo* *SPTAN1* nonsense variant causes hereditary motor neuropathy in a Chinese family

H.-L. Dong, L. Chen and Z.-Y. Wu

e11

Corrigendum

e12

Erratum

e13