



## Highlights from the UK CSF Disorders Day 2017

IIH UK Trustees Shelly Williamson and Clare Parr attended the CSF Disorders day organised by Miss Susan Mollen and Dr Alex Sinclair, it was held at the Bond Company, Birmingham. We were able to sponsor this event again this year thanks to our wonderful fundraisers. This education day is aimed at specialists in neurosurgery, neurology, neuroradiology and neuro-ophthalmology, it has become an annual event and we aim to be able to sponsor future years too. It was such an informative event with breaks spent networking with the attending clinicians; we had prepared information packs containing our literature which were given to attendees with advice on how to order more. We also took along some of our awareness merchandise, our squishy brains again proved very popular.

The following report was written by Miss Ruchika Batra, Fellow in Neuro-ophthalmology, Birmingham Neuro-ophthalmology Unit, University Hospitals Birmingham.

**Synopsis:** The management of patients with cerebrospinal fluid (CSF) disorders requires many specialist doctors, nurses and health care professionals. A symposium on CSF disorders was organised by the clinical and academic team at University Hospitals Birmingham NHS Foundation Trust. A major meeting sponsor is IIHUK. The 2017 meeting featured a synopsis of the latest scientific research on CSF disorders. Some of the more challenging and controversial issues facing the multi-speciality team were presented and discussed.

This annual symposium, on the management of patients with cerebrospinal fluid disorders, is aimed at all members of the multi-speciality team including specialists in neurosurgery, neurology, neuroradiology and neuro-ophthalmology. The symposium was designed by Miss Susan Mollan, Consultant Neuro-ophthalmologist at University Hospitals Birmingham and Dr Alexandra Sinclair, NIHR clinician scientist fellow, Institute of Metabolism and Systems Research at University of Birmingham.

The aims of the day were:

- To initiate debate and discussion on a selection of the more challenging and controversial issues facing the multi-speciality team managing CSF disorders
- To provide a synopsis of the latest scientific research

### **Speed Science Section**

The morning opened with the speed science symposium and showcased the work of clinicians and translational scientists.

Dr Will Scotton, Academic Clinical Fellow in Neurology (Birmingham) was awarded the speed science presentation prize for his research evaluating the use of ICP lowering drugs *in vivo*. The study was designed on the basis that there is currently insufficient evidence on the efficacy of different drugs to lower brain pressure in Idiopathic intracranial Hypertension (IIH). They showed that Topiramate significantly lowered ICP. The other drugs tested, including Acetazolamide, had no significant effect in the models.

Dr Bel Littlewood, Ophthalmology Trainee (Sheffield), presented a study of optic canal dimensions and correlated this with visual function in patients with IIH. The study concluded that there was no correlation between optic canal dimensions and visual function in patients with IIH and no difference in optic canal dimensions between IIH patients and controls. This suggests that, at presentation, IIH does not result in bone remodelling. The results cast doubt on previous studies which had raised the possibility that canal dimensions may be a useful prognostic indicator in visual function in Patients with IIH.

A study using DEXA scanning to assess the fat distribution in IIH, presented by Catherine Hornby, Medical Student (Birmingham) revealed that patients with IIH have centripetal obesity, similar to that seen in simple obesity. Weight loss correlated with loss of truncal fat mass. Further investigation into the potential pathogenic role of truncal fat mass in IIH is suggested.

Anuriti Aojula, Medical Student (Birmingham), presented her research on Optical Coherence Tomography (OCT) error in papilloedema. OCT imaging is being increasingly used in clinical practice for the monitoring of papilloedema. In her cohort of patients, significantly greater OCT error in patients with IIH was noted, compared to controls and this was particularly pertinent in individuals with moderate to severe disease. She concluded that OCT scans should be systematically assessed for error and manually refined to ensure accuracy in the longitudinal monitoring of patients with IIH....she did point out that this takes a lot of time and effort!

Dr Connor Westgate, Researcher (Birmingham) discussed the effects of androgen hormones on  $\text{Na}^+/\text{K}^+$  ATPase activity, a surrogate for cerebrospinal fluid secretion. Utilising an *in vitro*  $\text{Na}^+/\text{K}^+$  ATPase activity assay his research concluded that the androgen testosterone increases  $\text{Na}^+/\text{K}^+$  ATPase activity. This suggests that testosterone could increase CSF secretion and thereby increase intracranial pressure.

A study on the effect of lumbar puncture (LP) on headache in IIH, was presented by Dr Andreas Yiangou, Academic Clinical Fellow (Birmingham). He concluded that the majority of IIH patients experienced some deterioration in the headache in the week following LP. Headache severity before the LP significantly influenced the likelihood of improvement or deterioration after LP. Headache outcomes post LP in IIH patients are useful for pre-procedure counselling and consent.

The speed science section was followed by a series of interesting presentations with useful clinical and surgical learning points. Mr Shaz Ahmed, ENT surgeon at University Hospitals Birmingham, delivered a captivating lecture on the management of CSF leaks, featuring videos from his surgical practice.

A particular highlight was Dr Charlotte Marriott, Psychiatrist (Worcester Royal Hospitals), explained the importance of developing a basic understanding of mental health issues and specifically recognising the signs of depression in patients with CSF disorders. Using a case of coexisting IIH and depression to open her talk, she presented a practical guide on case

identification, clinical risk assessment and the management of depression based on the NICE Guidelines.

Mr Simon Shaw, Neurosurgeon (University Hospitals of North Midlands), provided a comprehensive review of the different types of CSF shunt procedures which included potential complications. He discussed the lack of clinical guidelines on shunting procedures, however, highlighted that useful lab-based data has emerged from the Cambridge Shunt Evaluation Laboratory.

A practical guide on the management of headaches in CSF disorders was delivered by Dr Alex Sinclair, Neurology (Birmingham). She explained that headaches have a significant impact upon quality of life in patients with IIH and that headache severity does not correlate with intracranial pressure. She highlighted some of the specific problems regarding headache management in IIH, including the lack of guidelines for IIH-related headaches, the significant impact of analgesia overuse, and some of the pitfalls of using migraine medications in IIH related to side effects such as weight gain (B-blockers and tricyclic antidepressants).

Dr Mitch Foster, Neurosurgical Trainee (Liverpool) discussed the wide variation in the management of Normal Pressure Hydrocephalus, the difficulties in establishing collaborative research and therefore the lack of randomised controlled trial data.

This was followed by a synopsis of the latest research in IIH, presented by Dr Alex Sinclair. This included the role of  $11\beta$ -hydroxysteroid dehydrogenase type 1, a modulator of glucocorticoids, which is thought to be dysregulated in IIH; the role of the 'glymphatic pathway,' that is, exchange in fluid between the CSF in the subarachnoid space and the interstitial fluid in the brain along paravascular routes; the role of obesity in IIH.

The keynote speaker, Grant Liu, Professor of Neurology and Ophthalmology (University of Pennsylvania, USA) presented a very comprehensive summary of nomenclature and diagnostic criteria in pseudotumour cerebri based on the revised diagnostic criteria (2013) which incorporate advances in the disease over the past decade. He summarised the lecture with an entertaining and engaging clinical quiz.

The 'Case Carousel' comprised four interesting and clinically diverse cases with useful learning points presented by Dr Anita Krishnan (Liverpool), Ms Catherine McMahon (Liverpool), Miss Ruchika Batra (Birmingham) and Mr Tim Matthews (Birmingham). A panel of two highly experienced neuroradiologists, Dr Swarup Chavda and Dr Satheesh Ramalingam (both University Hospitals Birmingham) commented on the scans. The cases included a frontal brain sagging syndrome from CSF hypotension presenting with executive dysfunction and treated successfully with an epidural blood patch; a subdural hygroma following decompressive craniectomy; intracranial hypertension secondary to the vitamin A, derivative all-trans-retinoic acid; intracranial hypertension complicated by an arteriovenous malformation.

The Great Debate, "**This house believes that IIH in adults and children is the same disease,**" was chaired by Mr Conor Mallucci, Neurosurgeon (Liverpool), and featured Mr Manoj Parulekar, paediatric ophthalmologist (Birmingham Children's Hospital) who proposed the

Motion, against Professor Grant Liu. Both speakers presented well-researched arguments, delivered in a most entertaining manner. The audience agreed that IIH in post-pubertal children is comparable to that in adults, however, in pre-pubertal children, IIH is a separate entity with different clinical features.

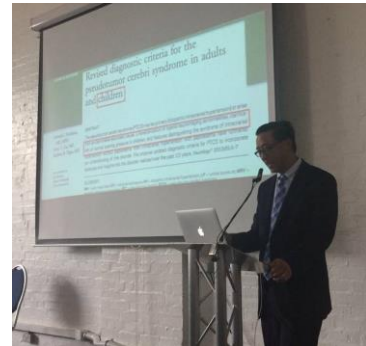
The CSF disorders day was a successful meeting, which received very positive feedback from specialists in the fields of CSF disorders.



Dr Will Scotton receiving his prize from Miss Mollen



Dr Sinclair and Shelly Williamson



Dr Grant Liu Professor of Neurology and Ophthalmology, University of Pennsylvania.



Delegates attending the CSF Disorders day 2017.