SOCIETY TIDINGS

United Kingdom CSF Disorders Day, 14th October 2016, University Hospitals Birmingham

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ABSTRACT

The management of patients with cerebrospinal fluid (CSF) disorders requires a multi-specialty approach involving specialists in neurosurgery, neurology, neuroradiology, and neuro-ophthalmology. A symposium on CSF disorders took place at University Hospitals Birmingham and covered a selection of the more challenging and controversial issues facing the multi-specialty team. The meeting also featured a synopsis of the latest scientific research. The authors provide an overview of the event.

ARTICLE HISTORY

Received 5 January 2017
Accepted 5 January 2017

KEYWORDS

Cerebrospinal fluid; idiopathic intracranial hypertension; intracranial pressure; headache; intracranial hypotension

The management of patients with cerebrospinal fluid (CSF) disorders requires a multi-specialty approach involving specialists in neurosurgery, neurology, neuroradiology, and neuro-ophthalmology. This symposium, aimed at all members of the multi-specialty team, was designed by Miss Susan Mollan, consultant neuro-ophthalmologist at University Hospitals Birmingham, and Dr. Alexandra Sinclair, National Institute for Health Research clinician scientist fellow, Institute of Metabolism and Systems Research at University of Birmingham (Figure 1).

The aims of the symposium were:

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

The opening session, entitled “How I do that...,” was a useful update on procedures used in CSF disorders. Dr. James Mitchel (neurology), delivered a practical guide on the use of ultrasound assisted

lumbar punctures. This was followed by Mr. Mike Potts (orbital surgeon, Bristol), who gave the indications for optic nerve sheath fenestration and its successes and complications. His approach was pragmatic and helpful. A useful synopsis of metabolic (bariatric) surgery, comprising an overview of laparoscopic gastric banding, gastric bypass surgery, and sleeve gastrectomy, was provided by Mr. Rishi Singal (upper gastrointestinal surgeon, Birmingham).

Dr. Nick Higgins (neuroradiology, Cambridge) illustrated a link between spontaneous intracranial hypotension and its relationship with idiopathic intracranial hypertension (IIH) through a case report. Mr. James Barber (neurosurgeon, London) presented his experience and an overview of the exciting role of telemetric intracranial pressure (ICP) monitoring and its use in IIH, hydrocephalus, and craniofacial disorders and following CSF diversion procedures.

The morning closed with the speed science symposium and showcased the work of clinicians and translational scientists. Miss Catherine Hornby, medical student in Birmingham, presented her research on the androgen metabolic profile in

Figure 1. Miss Susan Mollan and Dr. Alex Sinclair, organisers of the CSF Disorders Day.

IIH. New research reveals a distinct andro-metabolic profile in IIH when compared with polycystic ovary syndrome (PCOS) and simple obesity, with an increased serum testosterone seen in IIH patients. Preliminary results indicate that dysregulation of androgen metabolism enzymes in the subcutaneous fat, for example, 5α -reductase, may give rise to this unique profile seen in IIH. Future studies in this area could give rise to an exciting new avenue in IIH research.

Dr. Hannah Botfield, postdoctorate research fellow, Birmingham, presented research on the glucagon-like peptide (GLP)-1 receptor and IIH. GLP-1 receptors are present in the choroid plexus and modulate fluid secretion. When exendin-4, a GLP-1 agonist drug, was injected into a rat model, a subsequent reduction in ICP was noted following each injection. In addition to this, there was change in the baseline ICP suggesting a cumulative effect of the drug on the ICP. GLP-1 agonists may be a potential therapeutic agent in IIH.

Fascinating research using IIH models in rats was presented by Dr. Maria Schmidt Uldall, PhD

student, Copenhagen. Her research found that the ICP in female obese rats is higher than that in female rats of normal weight. Aquaporin-1, a passive water channel found in the membrane of the choroid plexus, is more highly expressed in obese rats compared with lean rats and therefore may have a key role in the pathophysiology of IIH.

“Paton’s lines: One hundred years on” was the topic of research presented by Miss Jennifer Kim, ophthalmology trainee, Manchester. Paton published the “Pathway of papilloedema” in 1911, describing a series of folds that ran concentric with the optic disc. Optical coherence tomography (OCT) techniques can now be used to diagnose and monitor Paton’s folds.

The BOD POD study was presented by Dr. Ben Wakerley, neurologist in Oxford and Gloucester, in order to address the question “Does intracranial pressure in non-IIH patients correlate with percentage body fat?” Using the BOD POD (COSMED, Italy), a device for accurately assessing the percentage of body fat, the study found a correlation between percentage body fat and the CSF opening pressure. This correlation was stronger in females compared with males and was not affected by patient age.

Dr. Will Scotton, Army Cadet Force Neurology, Birmingham, presented the patient experience of lumbar puncture, a retrospective study of 463 patients (mean age 33 years and mean body mass index [BMI] (kg/m^2) of 36). The mean number of lumbar punctures was four and 15 patients had >50 lumbar puncture procedures. The study found that 40% of patients experienced severe pain during the procedure, 85% felt that the analgesia was inadequate, and 47% were extremely anxious about the prospect of future lumbar punctures. The study highlighted the significant morbidity, pain, and anxiety related to lumbar punctures and the importance of adequate analgesia.

Professor Rigmor Jensen (neurologist, Danish Headache Centre, Copenhagen) was the keynote speaker (Figure 2). She presented a thorough and valuable overview of IIH-related headaches and the associated prognostic factors based on her research.

A guide for the non-ophthalmologists on OCT (mechanics and use as a clinical tool) was presented by Mr. Tim Matthews (neuro-ophthalmologist,

Figure 2. Professor Rigmor Jensen, consultant neurologist, Danish Headache Centre, Denmark.

Birmingham). The Great Debate, “This house believes stents are better than shunts for idiopathic intracranial hypertension,” was chaired by Mr. Graham Flint, neurosurgeon, and featured Dr. Nick Higgins, who proposed the motion, against Mr.

Conor Malluci (neurosurgeon, Liverpool). Both speakers presented highly convincing, well-researched arguments; however, the audience were ultimately in favour of shunting as the procedure of choice.

The closing session, entitled “Cases under pressure...you decide” was an entertaining and interactive symposium with numerous useful clinical pearls. Miss Mollan and Dr. Sinclair presented a series of interesting and challenging clinical cases presenting to a specialist IIH clinic. A panel of two highly experienced neuroradiologists, Dr. Swarup Chavda and Dr. Satheesh Ramalingam (Birmingham), commented on the neuroimaging whilst the audience enjoyed their role in decision-making using the electronic keypad voting system.

The CSF disorders day was successful, well received and well attended by specialists in the fields of CSF disorders. It provided useful clinical and scientific facts relevant to each speciality. The next CSF day will be Wednesday 27th September 2017, with a theme of CSF: kids to adults. It will feature the speed science session, case carousel, and another great debate, and keynote speaker will be Grant Liu, Professor of Neurology and Ophthalmology, University of Pennsylvania: “From the diagnostic criteria to diagnostic dilemmas: IIH in kids and adults.”

Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.