

Events

The Brain Injury Social Work Group (BISWG) Annual Conference

The object of BISWG is to advance the education of the public in particular people with a brain injury, their families and carers and professionals working within the field of brain injury, by the provision of seminars, conferences and forums and the provision of grants to attend educational courses on the subject of brain injury and by any other means as the trustees may determine.

When: 5 April

Where: The Bridgewater Hall, Lower Mosley Street, Manchester
Contact: For more information please email info@biswg.co.uk

Head First Conference on Living with Brain Injury (Accounting for the unpredictable)

The conference aims to provide objective evidence highlighting what happens to clients and families throughout their lives in respect to care costs, case management and deputy involvement.

When: 12 May

Where: The British Medical Association, BMA House, Tavistock Square
Contact: Jason Shelley at Jason@abisolutions.org.uk

Rehabilitation Conference for Clinicians and Lawyers

Exchange Chambers in partnership with Hunters Moor will focus on the importance of rehabilitation for those with severe brain injury and spine injury.

When: 15 June

Where: Mint Hotel, Birmingham
Contact: Jo Stapley at stapely@exchangechambers.co.uk

The Headway Conference and Exhibition 2011

The organisation's flagship event of the year

When: 11 and 12 September

Where: Barcelo Hinckley Island Hotel, Leicestershire
Contact: Please visit www.headway.org.uk for more information

UKABIF Annual Conference

Includes a range of presentations on such topics as mental imagery for neurorehabilitation, commissioning and Encephalitis.

When: 10 November

Where: The National Motorcycle Museum, Birmingham
Contact: Please email ukabif@btconnect.com

Special focus:

Pituitary problems after brain injury

ALTHOUGH it has been known for some time that pituitary dysfunction can follow traumatic brain injury, it is only in recent years that the subject has been taken seriously by the medical industry. In this season's special report, Mike Barnes, professor of neurorehabilitation at Hunters Moor, explains more about the subject and the related problems it can cause.

While there is no totally accepted figure, most studies have found around one third of people after traumatic brain injury have at least temporary dysfunction of the pituitary gland. In many people this dysfunction lasts beyond the acute phase and will be a serious, but treatable, cause of unnecessary further disability. This article provides a simple overview of the functions of the pituitary gland and flags up the circumstances when pituitary function should be tested.

Background

The pituitary gland lies at the base of the brain and is connected to the brain by a small stalk with direct neural links to the hypothalamus. It is a vulnerable structure that can be easily damaged in brain injury. The gland is divided into two parts - the anterior lobe and the posterior lobe. The anterior lobe is responsible for the production of growth hormone (GH), luteinising hormone (LH), follicle stimulating hormone (FSH), adrenocorticotropic hormone (ACTH), thyroid stimulating hormone (TSH) and prolactin. In turn the regulation of these hormones is largely under the control of the hypothalamus. The posterior pituitary gland produces arginine vasopressin (AVP) which has a key role in maintaining fluid balance in the body. It also produces oxytocin which stimulates uterine contraction during birth and ejection of milk during lactation.

Anterior Pituitary Dysfunction

Growth hormone deficiency causes growth failure or slowing of growth in children. In adults growth hormone deficiency can cause decreased energy, an increase in fat and decrease in muscle mass. There should be a high index of suspicion if a child is beginning to show slowed growth after a traumatic brain injury. In adults growth hormone deficiency can, be easily overlooked as the symptoms of decreased energy and tiredness and increased weight are very common in any case after brain injury.

FSH-LH - The production of these hormones can cause problems with the menstrual cycle, loss of libido, hot flushes, dyspareunia (pain during sexual intercourse) and infertility in women. In men it is often associated with loss of libido, impaired sexual functioning as well as mood impairment, loss of facial, scrotal or trunk hair and decrease in muscle bulk and easy fatigue. Once again these are problems that are quite common after brain injury and diagnosis is not always obvious.

ACTH - Chronic ACTH deficiency is also associated with fatigue, anorexia, weight loss and sometimes other metabolic complications such as low sodium and sugar levels. In children it can present with delayed puberty and failure to thrive. In more severe cases ACTH deficiency can be associated with vascular collapse, particularly during superimposed illness.

TSH - TSH is the hormone that

stimulates the thyroid gland to produce thyroxine. Individuals with TSH deficiency manifest the symptoms of hypothyroidism. These symptoms can include tiredness, coldness, constipation, hair loss, dry skin, hoarseness, general lethargy including slowing of "cognition", weight gain and low blood pressure. Prolactin - Fortunately there is no clinical syndrome that is known to be associated with prolactin deficiency.

Testing/treatment of anterior pituitary function - This is a specialised area and individuals should be referred to a local endocrine department if there are concerns about the pituitary function. Simple blood tests of the hormones are not usually adequate as the pituitary gland needs to be "dynamically" tested. Provocative tests stimulate hormone release either indirectly (by, for example, injecting a small dose of insulin) or directly by injecting synthetically manufactured peptides (Synacthen). Other tests are possible such as a glucagon stimulation test or an oral glucose tolerance test. This is clearly a specialist area and it is important to emphasise that simply taking blood to measure the hormones is not adequate.

Treatment for all the above conditions is simply by the administration of the appropriate hormones and thus it is important to recognise pituitary function as some, if not all, of the unpleasant symptoms can be readily alleviated.



Photo: Mike Barnes, professor of neurorehabilitation at Hunters Moor, with some of the carers at the Midlands facility.

Posterior Pituitary function - AVP deficiency leads to cranial diabetes insipidus which is not to be confused with a "sugar" diabetes mellitus. This condition causes the passage of large volumes of dilute urine (often more than three litres per day). This can obviously lead to dehydration and severe thirst. It is a disorder well recognised and quite common in the acute phase of traumatic brain injury but can extend for many months or years after the injury. Diagnosis is usually quite straightforward by measuring urine osmolality before and after administration of the AVP analogue called desmopressin. However endocrine referral is generally needed for diagnosis and long term follow up. The treatment is usually

straightforward and is by administration of desmopressin (DDAVP).

There is no known role for oxytocin production in men but in women oxytocin is probably necessary for the regulation of lactation and birth and reproductive behaviour but relatively little seems to be known about the effect of lack of production.

Screening

Should we undertake screening? Ideally everyone after a traumatic brain injury should have pituitary function screening but this is unlikely to happen and indeed has serious resource implications for the NHS. The problem is that many of the symptoms of pituitary dysfunction overlap with symptoms that are common in any

case after traumatic brain injury. Fatigue is a particular example. This is extremely common after brain injury but also very common in pituitary dysfunction. At the moment there are no clear guidelines. Pituitary dysfunction is more common after severe brain injury and after basal skull fracture so perhaps those people should be screened.

Those who develop diabetes insipidus in the acute phase should also be followed up and screened. This article simply flags up to treating physicians and medical experts that there should be a low threshold for considering pituitary dysfunction. It is an easily treated problem and one that deserves greater recognition.

Case study: One mother's battle to bring unseen condition to the fore

SINCE discovering the catalyst for her son's suicide three years ago, Joanna Lane has been on a personal crusade to raise awareness about the hidden spectre of post-traumatic hypopituitarism.

In the days after Christopher's untimely death, Ms Lane found letters to his former girlfriend describing the miserable secret behind his seemingly happy existence.

During his four-year relationship with the love of his life, he had been unable to physically express his feelings through full sex.

Having put this down to an unexplained and ultimately unbearable case of impotence, Christopher, (pictured with his mother) had kept the problem to himself and his partner and, tragically, never visited a doctor.

Knowing that Christopher had suffered a serious head

injury as a seven-year-old when he fell out of a tree, his mother later learned that approximately a third of traumatic brain injury survivors suffer damage to the pituitary gland, which can cause impotence and depression.

While the problem can be treated fairly routinely, the condition is vastly under-diagnosed - a fact that Ms Lane has strived to change over the last three years.

"Undiagnosed pituitary patients suffer the cruellest isolation because they look OK from the outside and nobody knows what's wrong, including the sufferers themselves, and nobody takes them seriously until they commit suicide as our son did," she says.

"At least if they're diagnosed they understand what has happened to them, and they get their family's love and support, and that has to count for a lot."

In a bid to save others from the misery that her son faced, Ms Lane began writing to websites which gave information about head injuries that had no mention of post-traumatic hypopituitarism.

The websites run by NHS Choice, Clinical Knowledge Summaries, BUPA and Headway have all since changed in response to her guidance. The response from hospitals she wrote to, however, was not so positive and, after initial interest shown by a handful of facilities, she fears that there still remains only a minimal amount of sites where screening takes place.

"My real hope is that if I keep pegging away, the information may get properly into the public domain. Once head injury patients themselves or their families start making a fuss the issue will be harder to ignore," she says.

To find out more about post-traumatic hypopituitarism, its symptoms, diagnosis and treatment, please visit Joanna Lane's website www.headinjuryhypo.org.uk.



News in Brief

RESEARCH has uncovered an essential protein which looks set to further the understanding of the brain injury seen in conditions such as multiple sclerosis, stroke and dementia. Scientists at the University of Edinburgh have found that the protein, known as Nfasc136, sustains the nerve fibres which are essential for the transmission of messages in the brain. Researcher Professor Peter Brophy said: "Knowing more about how signals in the brain work will help us better understand neurodegenerative disorders and why, when these illnesses strike, the brain can no longer send signals to parts of the body."

GLAXOSMITHKLINE (GSK) UK has reduced the price of ReQuip XL (ropinirole prolonged release) by 60%. ReQuip XL will now cost less than other dopamine agonists, which could deliver a cost-saving to the NHS of up to £15 million in 2011 and allow more people with Parkinson's to access this medicine.

THE DRUG erythropoietin (EPO), sometimes used illegally by athletes, could be used to help the brain heal following traumatic brain injury. Scientists are now looking at whether EPO is able to aid the brain's regeneration after a brain injury, reports the Australian Associated Press. It has been shown that the brain generates a small number of new neurones in adult life, and it is thought the drug could increase this effect.

Professor Cristina Morganti-Kossmann from the National Trauma Research Institute (NTRI) at Melbourne's The Alfred Hospital told the news agency that it was previously believed there was no way to replace lost neurones in the brain.

A NEW study has demonstrated the early brain injury caused by the HIV virus, shedding light on the nerve cell damage seen in the condition. Research, published in the Journal of Neuroscience, showed how the HIV infection leads to changes in brain cells, damage to neurons and inflammatory responses. Dr Nora D. Volkow, director of the National Institute of Mental Health, said that the research, which was conducted on mouse models, could lead to improved treatments that can be used early in the process.