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Neurology Symposium

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EDUCATION

Neurophobia is a term coined to describe the reluctance with which medical students and doctors approach neurological cases.[1] Several reasons have been proposed for the emergence of neurophobia including a lack of neurological teaching at medical school, the over-representation of rarer neurological diseases within the neurological inpatient population (and hence medical student over-exposure to these conditions), a perception of neurology being more difficult than other specialties and the overall impression that neurological patients are difficult to manage.[1] This symposium aimed to allay such fears and to provide a practical framework for the non-neurologist to approach the neurological patient.

SESSION 1 – FUNNY MOVEMENTS

Mr Steve Madill (Consultant Neuro-Opthalmologist, Princess Alexandra Eye Pavilion, Edinburgh) spoke on the topic of nystagmus, an involuntary eye movement. Jerky nystagmus, characterised by a slow drifting movement followed by a quick corrective jerking movement, arises from failure of either the gaze-holding mechanism or the vestibular system. Alexander's Law (assessing the intensity of the spontaneous nystagmus) can then be used to determine the presence of a vestibular lesion. Pendular nystagmus, characterised by slowly drifting and corrective eye movements, tends to arise from lesions of the brainstem and has a sinusoidal 'roving' pattern to it. Medications (such as phenytoin, alcohol and benzodiazepines) are also a common cause of nystagmus and so a drug history should always be sought.

Tremor is a common and misunderstood neurological complaint; Dr Nin Bajaj (Consultant Neurologist, University Hospitals NHS Trust, Nottingham) offered helpful tips when approaching the tremulous patient. First, it is important to establish when tremor is most evident (at rest, postural or during movement). Second, that most patients thought to have essential tremor will actually have benign indeterminate tremor.[2] Key clinical features of benign indeterminate tremor include: an asymmetric tremor, no bradykinesia and a normal dopamine transporter (DaT) scan which is used to detect the presence of dopamine transporters in the brain (patients with Parkinson's disease characteristically demonstrate less uptake within the basal ganglia). Third, bradykinesia remains key to the diagnosis of Parkinson's disease. Finally, we should remember that psychogenic tremor, among the most challenging disorders to diagnose, can be entrained and is diminished with distraction.

Dr Paul Reading (Consultant Neurologist, The James Cook University Hospital, Middlesbrough) gave an introduction to the parasomnias, a category of abnormal sleep behavioural disorder that are further subdivided into rapid eye movement (REM) parasomnias or the non-REM parasomnia. Non-REM sleep parasomnias typically occur in the first couple of hours of falling asleep (the non-REM sleep phase) and are characterised by complex behaviours that could even take place outside of the bed (e.g. sleepwalking). Patients typically have no memory for these events. REM sleep parasomnias, on the other hand, take place towards the end of the night (when most REM activity takes place), involve non-complex behavior (such as thrashing and acts of violence) and an association with dream remembrance.

SESSION 2 – MATTERS ELECTRICAL

Professor Matthew Walker (Professor of Neurology, University College, London) stated that mortality in status epilepticus (SE) rises rapidly after 30 minutes of

continuous seizure activity so rapid abatement of seizures is therefore key. Therapeutic measures include reversing any biochemical abnormalities, giving oxygen therapy and aggressive fluid management. Benzodiazepines (e.g. buccal midazolam or buccal/intravenous lorazepam) should be first-line medications, with intravenous sodium valproate or phenytoin (both at 20 mg/kg) held in reserve. Refractory SE requires intensive therapy unit (ITU) admission and the intravenous administration of anaesthetic agents such as the barbituate thiopentone or the non-barbituate propofol. Physicians must also be aware of the vacant patient chewing or picking at their clothes, as non-convulsive SE can easily be missed and is as difficult to treat if left for more than 30 minutes. Dr Roger Whittaker (Consultant Clinical Neurophysiologist, Royal Victoria Infirmary, Newcastle) gave a helpful overview of electroencephalography (EEG) and its uses and abuses in neurology. Whilst epileptiform activity on an EEG is specific (between 78–98%), the sensitivity of EEG remains low (ranging from 25–56%) even in those who have a high clinical probability of epilepsy.[3] In short, EEG can be a very useful confirmatory clinical tool but their findings should not necessarily override clinical suspicion.

SESSION 3 – COMMON COMPLAINTS

As Mr Spencer Harland (Consultant Spinal Neurosurgeon, Queen Elizabeth Hospital, Birmingham) reminded us, back pain remains a major problem for the NHS – it has a 33% point prevalence per year, costs the UK economy £3,440 m per year and is a major cause of disability.[4] Mr Harland offered practical advice for its management and introduced a cautious note over recent evidence suggesting that a 100-day course of co-amoxiclav could be used to treat low back pain associated with oedematous vertebral body changes on magnetic resonance imaging (MRI), a clinical feature seen in 35–40% of those with low back pain.[5]

Dr Mark Lewis (Consultant Neurologist, Pinderfields General Hospital, Wakefield) offered practical advice when dealing with dizzy patients. He recommended that we start by asking the patient to describe their symptoms without using the word 'dizzy' in order that we might better understand exactly what the patient is experiencing. Useful examination techniques include the Unterberger's stepping test (where patients are asked to walk on the spot with their eyes closed and arms outstretched) where patients will drift towards the side of their dysfunctioning vestibular system. The vestibulo-ocular reflex suppression test that is best done by sitting the patient on a swivel chair with arms outstretched and hands clasped and the patient looks at their hands while you turn them. A normal test is one in which the subject is able to keep their eyes fixed on their hands. An inability to do so suggests pathology in the vestibulocerebellum (i.e. central dysfunction). Finally, the Dix-Hallpike test should be used in all patients suspected of having benign paroxysmal positional vertigo (BPPV; an underdiagnosed condition). This manoeuvre requires the patient sitting on a bed, rotating their head through 45 degrees and then quickly lying down. Following a 8–10 second latency, nystagmus should be seen in BPPV patients.

Professor Nick Fox (Professor of Neurology, National Hospital for Neurology and Neurosurgery, London) reminded us that 'memory difficulty' is a wide topic – for instance, memory problems could in fact be due to a dysexecutive syndrome. Careful observation reveals important diagnostic clues (such as the head-turning sign in Alzheimer's disease, whereby patients look to the accompanying caregiver when asked a question, and the use of an engaging social façade to hide cognitive dysfunction). Finally, he urged us to view delirium as a serious condition as it is both a differential diagnosis for dementia but also points to an emerging dementia. The key discriminating features of delirium include acute-onset cognitive dysfunction, association with a general systemic illness (such as infection or dehydration) and the inability to sustain attention, a feature not seen in Alzheimer's disease.

SESSION 4 – ATTACKING THE NERVOUS SYSTEM

Speakers in session four addressed the ways in which the neurological system can come under attack from within and without. Dr Jesse Dawson (Clinical Senior Lecturer in Medicine, University of Glasgow) informed us that street drugs and 'legal highs' are becoming increasingly available and that many stimulant drugs cause neurophysiological perturbations, eventually leading to vasospasm, platelet aggregation and strokes. Hyperthermia associated with stimulant ingestion (such as amphetamines and ecstasy) remains a worrying feature of any overdose patient (and should prompt an ITU referral); the sedative effects of alcohol and other gamma-aminobutyric acid (GABA)-ergic drugs were also discussed.

Professor Angela Vincent (Professor of Neuro-immunology, Weatherall Institute of Molecular Medicine, Oxford) spoke about antibody-mediated neurological disorders. Identification and diagnosis of these disorders is important given that they tend to only respond to immunosuppression (such as steroids, intravenous immunoglobulins or plasma exchange). For instance, neuromyelitis optica (a demyelinating condition which may present with a painful loss of vision, weakness, sensory changes and autonomic dysfunction or combinations thereof, all with a typically longitudinally-extensive white matter lesions in the spinal cord on MRI) due to aquaporin-4 or myelin oligodendrocyte

glycoprotein (MOG) antibodies will not respond to biological treatments, and immunosuppression in LGi1-associated faciobrachial-dystonic seizures not only treats the seizures but also prevents the onset of limbic encephalitis.

From Galen to Hughlings-Jackson, neurologists have been keen investigators of the neural mechanisms of consciousness. Professor Adam Zeman (Professor of Cognitive and Behavioural Neurology, University of Exeter) is the latest to uphold this tradition. In his Sydney Watson Smith lecture, he gave a short précis of the latest conceptual models, followed by a review of functional imaging studies into brain networks involved in conscious experience. Research into disorders at the edge of consciousness (such as decision-making in a persistent vegetative state) continues to illuminate our understanding of what consciousness actually is. Clearly much progress has been made since Galen but there is still some distance yet to go.

TAKE-HOME MESSAGE

This symposium demonstrated that so much of neurology is founded upon good history taking and examination and much practical advice was given. One can only hope neurophobia becomes an ever-rarer affliction. However, the inner obscurist did begin to surface and so thanks should be given to Dr Bajaj for providing the day's most esoteric diagnosis: rabbit syndrome, a rare extrapyramidal side-effect of antipsychotics which induce a vertical perioral tremor at a rate of 5 Hz and so mimics the chewing action of a rabbit.

EDUCATION

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