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InspireMEdicine conference supplement

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The 2nd Annual InspireMEdicine conference was hosted at University College London on the 24th January 2015. With over 150 delegates in attendance, this one day conference gave students the opportunity to take part in a number of workshops organised around and within University College Hospital, with the aim of increasing their medical inspiration.

Our conference gratefully received support and interactive talks from Professor Jane Dacre (President, Royal College of Physicians), Miss Su-Anna Boddy (Consultant Paediatric Urologist), Professor Mike Pringle (President, Royal College of General Practitioners), Professor Mark Baker (Director, Centre for Clinical Practice, National Institute for Health and Care Excellence), Mr Kenneth Charman (Visiting Fellow, Institute of Ageing, University of Newcastle), Dr Aseem Malhotra (Interventional Cardiologist) and Dr Christian Jessen (TV presenter-Embarrassing Bodies, UCL Aluminus).

We hosted a poster competition to highlight the cutting edge research that students, from around the UK, have been able to get involved with, alongside their studies. We were overwhelmed with abstract submissions, and selected the ten best for poster presentation on the day of the conference. A panel consisting of current UCL MBPhD students selected the overall winners of the competition, which are subsequently published below. Myself, the other members of the organising committee and the judges would like to thank all those who submitted an abstract to this conference, and I would like to personally congratulate our winners once again.

CALLING FOR CHANGE: IMPROVING THE CALL BELL SYSTEM FOR PATIENT SAFETY

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Inpatient care relies upon the assumption that patients are able to express needs and concerns to healthcare professionals. Therefore, call bells are described as “the patient’s lifeline”. Failures of this system can result in communication breakdown, exposing patients to otherwise preventable harm. Our study aimed to assess call bell accessibility within St Peter’s Hospital, collating patient opinions and evidence of current practice.

40 patients on 10 randomly selected wards were surveyed to assess understanding, inpatient experience and suggested improvements. Call bell location was audited for all beds on 6 randomly selected wards over 24 hours, with photographic evidence of misplacement.

92.5% of patients deemed call bells “useful”, with 72.5% receiving an explanation on admission. 67.5% “always knew” where their call bell was, yet 47.5% deemed improvement “necessary”. Our audit showed up to 52% of patients were unable to access their call bell at any one time.

Call bell system failures raise patient safety concerns, especially for those deemed vulnerable due to physical disability or mental capacity issues. Problems can be alleviated by: increasing patient empowerment and universal staff accountability. Improved equipment would allow both attachment and flexibility (for example, hooks, clips or wearable devices).

INVESTIGATION OF THE TRUNCATED SPLICE ISOFORM OF THE NEUROTROPHIN SCAFFOLD PROTEIN KIDINS220

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Neurotrophin signalling allows for tight regulation of development, morphology and survival of neurons. One downstream target of neurotrophin signalling is Kinase-D interacting substrate of 220 kDa (Kidins220), an integral membrane protein. It acts as a scaffold and connects neurotrophin signalling to downstream pathways via association with p75 and Trk neurotrophin receptors, as well as containing several distinct intracellular domains. A novel truncated splice isoform of Kidins220, lacking a long C-terminal exon 32, was investigated. This structural change renders it deficient in many of its protein-protein binding motifs, suggesting an alternative function for this naturally-occurring splice variant. Cells were transfected with a recombinant form of the Kidins220 short isoform with a hemagglutinin (HA) tag. Immunoprecipitation of the resulting cell lysate allowed isolation of the truncated isoform. Further analysis sought to determine the binding partners of this novel isoform, and its role in neurotrophin signalling and vesicle trafficking in neurons. We successfully pulled-down the short Kidins220 isoform, and managed to co-precipitate its hypothesised binding partner, the protein FAM-21.

IN THE BLINK OF AN EYE: VALUE AND NOVELTY DRIVE SACCADES

Sean Cavanagh, Nishantha Malalasekera, Steven Kennerley. *Sobell Dept. of Motor Neurosci. and Movement Disorders, London, United Kingdom*

Evidence accumulation is an essential component of value-based decisions. Recent human studies suggest that overt attention correlates with evidence accumulation necessary for optimal decisions. However, the influence of covert attention on decision-making remains relatively unexplored.

To investigate this issue, two monkeys were trained to perform a decision-making task where they chose between two stimuli, which were either ‘Overtrained’ or learned that day (‘Novel’). Subjects could freely saccade during choice evaluation and indicated their decision by moving a joystick. Saccades were made within 170 ms of stimulus presentation and were strongly driven by both value and novelty, implying covert stimulus evaluation prior to saccade. This effect was strongest for ‘Overtrained’ choices, but rapidly emerged during learning of ‘Novel’ choices. Though novel stimuli attracted initial saccades, final decisions were guided only by value; implying attentional value comparison processes are at least partially dissociable from value comparison processes that govern final decisions. While subjects made highly optimal decisions, they frequently viewed only one stimulus; final choice was thus best explained by assuming covert evidence accumulation. Our results suggest that the primate brain contains multiple value comparison systems for guiding

attention toward highly valuable or novel information while simultaneously optimizing final decision value.

CLEAN INTERMITTENT SELF-CATHETERISATION COMPLICATIONS IN PATIENTS WITH AUGMENTATION CYSTOPLASTY AND ARTIFICIAL URINARY SPHINCTER FOR THE TREATMENT OF NEUROPATHIC BLADDER DYSFUNCTION

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This cohort study reviews outcomes of patients with neuropathic bladder disorders who had augmentation cystoplasty and artificial urinary sphincter (AUS) implantation. We compare the outcomes of those that regularly clean intermittent self-catheterisation (CISC) with those that do not.

123 patients (77 male, 46 female) underwent cystoplasty, by a single surgeon, with AUS implantation. Group 1 (n = 67) performed CISC and group 2 (n = 56) did not. Mean age at time of initial surgery was 22 years (4.3–73 years).

85 (group 1 n = 42 vs. group 2 n = 43) had the AUS removed after a mean of 6.3 years. The mean time to explant was equal in groups 1 and 2. In group 1, erosion occurred in 48.8%, infection in 2.4%, and malfunction 48.8%. The mean time to explant was 4.95 years for erosion and 8.2 years for malfunction. 1 patient had infection at 2 days. In group 2, the devices were removed due to erosion in 53.4%, and malfunction in 44.3%; after a mean of 5.1 years, and 9.6 years respectively. 1 AUS was removed for infection after 23 days.

51 patients had a second AUS implanted with 28 being removed after a mean of 4.9 years, with 14 patients in each group. Erosion occurred in 39.2%, infection in 3.7%, and malfunction in 57.1%. Mean time to explant following erosion was similar in groups 1 and 2. Patients with augmentation cystoplasty and an AUS developed erosion and infection at equal rates and mean time whether they performed CISC or not.