Conference Review: The 15th Congress of European Society of Child and Adolescent Psychiatry in Dublin July 6-12th 2013.

Dr. David Dossetor

Child Psychiatrist, The Children's Hospital at Westmead

"In Dublin's fair city"... the locals were very friendly. The meeting was held in lovely weather in the smart new conference centre on the Liffey River in the renovated docklands. This conference brings together the strength of world child psychiatry research and is a great cultural integrator with presenters from so many countries. With anything up to 10 parallel sessions, I suspect it was a different conference according to your interest, but guided by plenary topics and the more relaxed 'meet the experts' sessions.

David Skuse from Great Ormond Street Hospital presented on the changes in diagnostic criteria for Autism (now called ASD) with the arrival of DSMV. His data shows a doubling of the number of children whom parents describe as Autistic between 2007-12 but this is mainly accounted for by those who are only mildly impaired according to the new grading of ASD severity. The DSMV criteria changes are needed to cap the expansion of the diagnosis. His data suggests that 96%, 97%, 77% of those with Autism, Asperger and PDDnos respectively diagnosed with DSMIV criteria still qualify for ASD in DSMV, which is less alarming than other commentators. His data has long shown that social reciprocity and social communication are so highly correlated that they should be one dimension. DSMV repetitive activities dimension includes new elements of sensory sensitivities, and repetitive thinking, and removes impaired imagination while keeping impaired social imagination. All these changes he felt were improvements in the specification of criteria. His data shows that on the new criteria that IQ is not correlated. Less is known about new taxonomic disorder of Social Communication Disorder, which can be construed as ASD without repetitive behaviour. His impression is that those with such a semantic pragmatic disorder as still pretty impaired. Martin Knapp's health economics shows that the lifetime costs (to the state) of ASD with ID is £1.23Million and £800,000 without ID.

Louise Gallagher from Trinity College Dublin presented on the growth in conceptualisation of neurodevelopmental disorders: which includes communication disorders, learning disability, ASD, Tourettes, ADHD, schizophrenia and psychosis, and possibly sensory motor disorders. She used the example of the growth in understanding in Retts Syndrome to illustrate how quickly the science is advancing. This genetic disorder in girls of ASD, seizures and cognitive decline was first described in 1966, had its gene identified in 1999, and a mouse model developed in 2000. Retts has identified deficits of noradrenaline in the locus coeruleus, dopamine disturbance in the midbrain and immature neurone development due to the failure of regulation of the abnormal MECP2 gene which affects the release of BDNF (brain derived neurotrophic factor). BDNF has been shown not only to stop deterioration in Rett Mice but even reverse some effects, and human trials are under way of IGF1 which is similar but crosses the blood brain barrier. It is also reassuring to know that an 'enriched environment' has beneficial effects on affected mice emphasising the importance of environmental intervention despite knowing more about the underlying biology.

The very recent genetic research has (at last) made some interesting reproducible findings from microarray technology. A consistent series of new mutations through copy number variance (CNV) with deletions or repetitions in coding sequence have been found in about 15% of cases in ASD. In mouse models, these specific genes such as Neuroligin 3 and 4 and Shank 2 and 3, Neurexin affect dendrite formation in neurones, and presynaptic GABA and glutamate in the synapse. While it is encouraging to find relevant genes and brain proteins in neurodevelopmental disorders, they are relevant not just for ASD but also for most of the other neurodevelopmental disorders: the problem of pleiotrophy: single identified cause leading to multiple different outcomes.

Mike Owen and colleagues (2011) recently suggested that neurodevelopmental disorders are a spectrum with similar processes occurring at different ages: ID/ASD prenatally, ADHD/Tourette in childhood and Psychosis in adolescence. Louise noted that pharmaceutical companies are no longer developing new psychiatric drugs, but there is a huge library of known substances, to be called on when genetic research suggests. It is even conceivable that stem cell technology could be personalised to an individual's gene deficiency. Matthew State from University of California further elucidated the genetics. We now realise that there are lots of imperfections in each person's genome. CNVs make the genome look "like a swiss cheese" and the challenge is working out which abnormalities are significant. This is done by finding which CNVs are new in an autistic child compared with parents and sibling (the Simon's Simplex Collection). 25% of ASD kids have CNV deletions and 25% have CNV duplications compared to 9% of each in unaffected siblings.

This year there were 3 replication studies reported within a

week for 5 hot spots on the chromosome: 1q21.1 (for ASD & schiz), NRXN1 on chromosome 2 (for ASD, ID & schiz), 7q11.23 (for ASD & ID), 15q11.2 & 16p11.2 (for ASD, Schiz, ID & EP). These are "killer mutations" that are found in 15% of cases, but there may be a total of 100 or 1000 relevant to these conditions. Although a gene is found in every cell, its action depends on the trajectory of gene expression: ie in which type of cell, where about in the brain and at what stage of development. For one ASD gene SCN2A his colleagues were able to say that its effects were in mid fetal period, in a deep brain layer, affecting glutamate development.

Tobias Banaschewski from Mannheim described that there are several types of ADHD and different attentional systems: the frontal executive, and the parietal selective attention. Dopamine is important to improve signal/noise ratio, attentional orientation, impaired attentional resource allocation and response preparation. The anterior cingulate is important for error processing. However there are abnormalities of the amygdala with negative emotion processing, the R cerebellum, parietal lobe, L supra anginual gyrus and the insula and, basal ganglia to L inferior frontal cortex. Medication is seen to improve brain development. There are evidently different aetiological subtypes of ADHD, just like ASD, but we are not ready for a DSM based on aetiology yet.

Stephen Scott from the Maudsley talked of parenting programs. Normal cortisol patterns start high in the morning and go down during the day. Deprived rats have abnormal cortisol stress responses. Some have cortisol levels that stay high and stressed, in some the cortisol drops and loses stress responsiveness. Despite the stability of these abnormal stress patterns good foster parenting can renormalise these cortisol patterns. Recent review of parenting programs show that they improve oppositional behaviour but blinded RCTs don't show improvement in the ADHD features. However parenting programs such as Parent Child Intervention Therapy (PCIT) does improve behaviour and attachment, regardless of severity or callous unemotional traits.

John Walkup from Weil Connell presented on anxiety disorder (age of risk of onset 6-12), depression (13-16) and bipolar (over 16). Although prescribing for anxiety is off label there is scientific evidence of benefit. DSMIII concept of depression was sadness without a cause or melancholia,

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but DSMIV validated depression to include those with a cause. Generally study evidence shows that combination CBT and antidepressants has a higher rate of effect than either on its own. Those that got some treatment effect in a trial also sought further treatment, whereas those with no response tended to drop out. He pointed out that independently funded studies of depression (NH&MRC) had bigger drug treatment effects and lower placebo effects. Industry funded trials had big variability of outcome at different sites and high placebo effects, indicating poorer quality of treatment intervention and greater problems with compliance. Identifying manic episodes is clinically critical, whereas antipsychotics help irritability of all types.

There was a session on the importance of identifying catatonia in children and treating with benzodiazepines or ECT, and of anti-NMDA receptor autoimmune encephalitis which probably should be a routine blood investigation for serious mental illness and can need treatment with IVIG and plasma exchange.

I presented in a session of prevention interventions for special schools with our study on Group Stepping Stones for 4-12year olds with intellectual disability. One presentation emphasised the value of recording ecological (multisource) measures of whether children feel safe in school, rather than of bullying. Management of bullying is a chance to help both bully and victim to develop more accepting relationships. The conference was rounded off with a young teens Irish group who are a recent YouTube sensation called Fresh Re. I concluded my visit with a trip to the 6th floor 360degree bar at the top of the Guinness Factory with a panorama over Dublin and a pint of draught Guinness. In the 1750s Alfred and Winifred Guinness had 25 children, just under half of whom died in childhood. This is a stark reminder of how far paediatrics and health has come.

Owen MJ. O'Donovan MC. Thapar A. Craddock N. Neurodevelopmental hypothesis of schizophrenia. *British Journal of Psychiatry.* 198(3):173-5, 2011 Mar.