

Genetics: Impact on Current Child and Adolescent Mental Health Practice: ACAMH national meeting, 18 March 2005



Delegates waiting for the Conference to commence

Morning Presentations

The New Genetics: A Guide for the Perplexed Professor Anthony Bailey

The theme of this conference was the impact of new knowledge in genetics on current child and adolescent mental health practice. The programme began with an introductory talk by Professor Anthony Bailey who instructed us in the basics of contemporary molecular biology. He suggested there were four ways in which genetic findings might inform our practice. They could lead to improved understanding of underlying neurobiological mechanisms as well as to improved identification of environmental risk factors. They could optimise preventive and treatment strategies. Finally they could inform genetic counselling; I appreciated particularly his clear explanation of 'imprinting' – the process whereby genes vary in their effects on the individual depending on whether they are inherited from the mother or the father.



Anthony Bailey



Leon Eisenberg

Emanuel Miller Lecture – Are Genes Destiny?

Have Adenosine, Cytosine, Guanine and Thymine replaced Atropos, Clotho and Lachesis as the Weavers of our Fate? Professor Leon Eisenberg

The highlight of the day was the 2005 Emmanuel Miller Lecture delivered by Professor Leon Eisenberg, Professor of

Social Medicine, Harvard Medical School. With his usual combination of scholarship and wit, he forcefully argued that 'neither genes nor environment are destiny'. Every phenotype reflects the outcome of a unique set of genes with a unique set of environmental circumstances. There are, of course, lethal genes, those responsible for fatal outcomes regardless of environment, but there are also lethal events, such as the tsunami, that kill all regardless of genetic makeup. He described a number of studies of complex gene-environment interactions in rats and voles, involving cross-fostering studies and interventions with hormone injections.

Professor Eisenberg discussed the concept of heritability, whose value is limited by the fact that the figure arrived at depends on the constancy of the environment in which the phenotype is expressed. For example, the heritability of intelligence, found to be high in most studies, is barely detectable in children born to impoverished families. Studies of children of mothers with schizophrenia show high transmission of this condition, but the risk is much raised if the children are raised in dysfunctional families, though family dysfunction in itself carries no increased risk of schizophrenia in children who are not genetically vulnerable.



Julia Kim-Cohen

Maternal Depression and Children's Antisocial Behaviour: More than just Genetics Dr Julia Kim-Cohen

Dr Julia Kim-Cohen then reported the findings of a British cohort study of twin children of depressed mothers. The families were studied when the children were five and seven years of age. Antisocial behaviour (ASB) in the child was associated with lifetime depression in the mother to a modest degree. However it was more likely to occur if the mother had suffered depression during the child's lifetime, suggesting an environmental effect. There was also a dose effect, the more the child had experienced the mother when depressed, the greater the risk of ASB. This link was not accounted for by the presence or absence of antisocial personality disorder (ASPD) in the mother.

However maternal negativity towards the child was definitely higher in those mothers who were both depressed and showing ASPD. Maternal negativity was confirmed as influential by demonstrating in discordant monozygotic twins that the less favoured twin was more likely to show ASB. Julia Kim-Cohen concluded that treatment to reduce maternal depression should produce improvements in child behaviour outcomes. Trials to examine this possibility are needed.



The Delegates Lounge area at Immarsat Conference Centre

Afternoon Presentations

Eating Disorders and Gene-Environment Interactions ***Professor Janet Treasure***

After the launch of the 'Association for Child & Adolescent Mental Health' ACAMH delegates enjoyed a pleasant sandwich and fruit lunch in the graceful surroundings of the mezzanine floor at the Immarsat Conference Centre. The layout of the public areas in the conference centre is comfortable and seemed to encourage a pleasant ambience for networking. The afternoon session was opened by Professor Janet Treasure of Guy's & St. Thomas' NHS Foundation Trust talking about 'eating disorders and gene-environment interactions'. In an elegant and comprehensive review



Janet Treasure

Professor Treasure argued that the concept of a spectrum of eating disorders had been expanded in recent years to cover the whole range of disorders, from restricting anorexia nervosa at one end to binge eating and simple obesity at the other end. She examined in detail the possible components of an ED phenotype drawing on an impressive personal portfolio of research. Professor Treasure developed a case that personality traits of rigidity and perfectionism termed 'cognitive style' were the key link between phenotype and genotype. She then discussed the present status of linkage studies with multiplex families and the clear message seemed to be that evidence was accumulating of firmer links between personality traits which maintain eating disorders and genetic transmission of these traits. Professor Treasure emphasised that models of risk factors must include environmental factors particularly as demonstrated by studies of feeding problems in childhood and their linkage to maternal eating behaviour. The presentation was followed by a lively discussion.

The Differential Effects of Early Institutional Deprivation on Development: The Potential role of Genetic Factors

Professor Edmund Sonuga-Barke



Edmund Sonuga-Barke



Barbara Maughan

The next presentation was by Professor Edmund Sonuga-Barke, 'The Differential Effects of Early Institutional Deprivation on Development – Potential role of Genetic Factors'. Professor Sonuga-Barke took great care to highlight the vital contribution of a large ERA study team and collaborators lead by Professor Michael Rutter, whose visionary approach had enabled the team to grasp the opportunity created by the collapse of the Ceausescu regime in Romania, to study the consequences to Romanian infants of adoption by British families in terms of the outcomes of physical, social and emotional development. The focus of the day's presentation was to demonstrate the way in which an actual experiment can be used to measure the effects of early institutional deprivation on development using hyperactivity as the principle outcome measure. Also presented were evidence of genetic mediators acting as moderators and markers of environmental risk, i.e. there was evidence from the study that resilience and vulnerability to depriving environments may be a genetic disposition. Professor Sonuga-Barke promised even more interesting findings in the future once the GenERA study including full genetic typing of the sample was completed which would allow specific identification of alleles for these traits.

Nature, Nurture and Conduct Problems ***Dr Barbara Maughan***

Dr Barbara Maughan completed a rich and stimulating afternoon by showing her skill and flexibility in presenting a complex subject, while coolly adapting her talk in vivo to avoid the sometimes inevitable overlap with previous presenters. This produced a lucid reprise of the present state of research in conduct problems, which emphasised the need to define homogenous subgroups of behaviour disorders before causal connections can be made. One aspect I found most thought provoking was Dr Maughan's explanation of the way in which child-rearing environments are also structured by the genetic influences on parental behaviour and child characteristics. With regard to the latter, I was relieved to see the evidence that vulnerability to child abuse as revealed by studies of twins shows no genetic effects per se, although there is fascinating evidence from the Dunedin cohort study of an interaction between physiological stress mediators in the child [MAOA activity] with maltreatment and later conduct disorder. Barbara Maughan's presentation ended the conference in fine style before a brief but eloquent summary and farewell from the chair Professor Anne Le Couteur.

Philip Graham and Patrick Byrne