

The WAGER, Vol. 3(45) - Around the world, around the genome

November 10, 1998

“For mental disorders, genetic methods are likely to be more powerful than any other approach in uncovering the underlying basis” [1]. So wrote Peter Propping, chair of the 6th World Congress on Psychiatric Genetics, held last month in Bonn, Germany. In addition to the plenary sessions, the Congress included poster sessions, during which some 350 studies were presented by researchers from around the globe. Below are selections:

- Building on research that implicates serotonin-producing and dopamine-producing genes in the development of pathological gambling, geneticists in Spain tested the frequency of the suspect alleles among pathological gamblers and a matched control group. Data was then stratified by gender to look for possible sex-linkage. Among the genes considered were the DRD4 dopamine receptor gene and the 5-HTTLPR serotonin transporter gene. For the females, a particular polymorphism of the DRD4 gene occurred more frequently in the genotypes of gamblers than in the control group ($\chi^2=5,459$; $df=1$; $p=0.021$). Among the males, a particular variation of the 5-HTTLPR gene was found to be significantly more common in pathological gamblers than in their control counterparts ($\chi^2=7,050$; $df=1$; $p=0.008$) [2].
- Using a sample of 45 subjects with diagnosed eating disorders and matched controls, researchers in Italy found a discernibly higher prevalence of a particular 5-HTTLPR allele in the former group ($p=0.023$) [3].
- In Belgium, scientists studying the genetic basis of unipolar and bipolar affective disorders found that unipolar carriers of a particular DRD4 allele were less socially adjusted than unipolar non-carriers ($p<0.001$) [4].

Considering the findings above, can we deduce a relationship between pathological gambling, depression, and eating disorders? If these maladies indeed share the same genes, then are they more similar than different? It is easy to make unsubstantiated logical leaps and attribute causation prematurely. Consider the following statements: Knowing that gene “X” produces neurotransmitter “Y”, and that neurotransmitter “Y” is associated with disease “Z” is not equivalent to

knowing that gene "X" causes disease "Z". Similarly, knowing that a parallel relationship exists between gene "X", neurotransmitter "Y", and disease "Q" is not sufficient grounds to deduce a common etiology for the two diseases. Such an analytical admonishment in no way devalues the research presented above; rather, it reminds us of how much we have yet to learn.

Sources:

1. 1998 6th World Congress on Psychiatric Genetics, Bonn, Germany, October 6-10, 1998. Sponsored by the International Society of Psychiatric Genetics. American Journal of Medical Genetics (Neuropsychiatric Genetics) 81, 451-556.
2. Ibanez, A. et al. (1998). Sex differences in pathological gambling: Genetic contribution.
3. Di Bella, D. et al (1998) Genetic studies in eating disorders.
4. Blairy, S. et al. (1998) Association between social adjustment and candidate genes polymorphism in remitted bipolar and unipolar patients.

This public education project is funded, in part, by The Andrews Foundation and the National Center for Responsible Gaming.

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