The Genetics of Anorexia Nervosa: Current Findings and Future Perspectives

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2828778/

I was surprised when I saw the title of this article; after all, how could an affliction as contested and complex as anorexia be explained by a simple gene? I can’t say I understand the disease myself, but so much of it is often attributed to societal factors and culture – nurture rather than nature, in other words.

However, the article did not purport to assign the disease of anorexia to a simple explanation. The researchers made a point to emphasize the complexity of the disease, and suggested that instead of a single gene that dictates whether or not a person will develop anorexia, it is more accurate to say that there is a collection of genes that increase the likelihood of developing an eating disorder. The researchers studied twins, to determine to what degree genetics influence eating disorders*. The study found the genetic factor to be 0.56, as opposed to the 0.05 attributed to shared environment and 0.38 to unique environment. Thus, a genetic link is determined; what remains is to identify the particular genes. Using linkage analysis, the researchers were able to assert that the serotonin 1D receptor (HTR1D) and the delta opioid receptor (OPRD1) located on chromosome 1 corresponded to a linkage peak. Additionally, obsessionality at 6q21, anxiety at 8p21.3, body mass index at 4q13.1, concern over mistakes at 11p11.2 and 17q25.1, and food-related obsessions at 17q25.1 and 15q26.2 were all linked to the development of anorexia. HTR1D and HTR6 have both been associated with eating disorders as well, genes corresponding to depression. In the case link study, the scientists analyzed the patterns in genes related to serotonin and dopamine production, as well as neuropeptides related to feeding. These genes were found to correspond to anorexia negatively; that is, a person that tends to produce less dopamine may be more likely to develop an eating disorder. Overall, the study left me both unsatisfied and comforted. On the one hand, I am glad there is not one determining factor that determines the existence of an eating disorder; on the other, it would be much easier to digest (no pun intended) if it eating disorders were as simple as a binary gene.

*The study, Swedish, was surprisingly large: 31,406 participants.

-Ioana Cherascu