Untangling the Mystery: The Link between Variations in the Oxytocin Receptor Gene and Trichotillomania

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Trichotillomania is a psychological condition that has no known causes or cures. While this condition, which causes people to compulsively pull out their hair, is believed to be multifactorial, the genetic factors that contribute to the condition have not been widely reported. However, the condition has been associated with other common psychological conditions such as anxiety, obsessive-compulsive disorder, and depression. The oxytocin receptor gene was chosen for this project due to a correlation between oxytocin levels and behaviors during social interactions, emotions of happiness and calmness, and characteristics of grooming in animals. Two groups of participants were contacted about the study. A control group (n=64) was composed of participants who had never experienced trichotillomania, and an experimental group (n=32) was composed of participants from trichotillomania support groups across the country who exhibited trichotillomania symptoms. Both groups responded to surveys and provided a buccal sample from which DNA was extracted. Part of the oxytocin receptor gene was amplified using custom-made primers and the polymerase chain reaction (PCR) and once the correct band size of roughly 1500 base pairs was confirmed using gel electrophoresis, the samples were sequenced. A chi-squared test was performed on the 26 detected single nucleotide polymorphisms (SNPs) and several significant changes were identified. For example, individuals with trichotillomania were statistically more likely to be heterozygous for SNP 26 and rs552628465 .While these findings may appear insignificant, discovering which genes are associated with trichotillomania can aid in the development of effective medications and treatments for those living with the condition.

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