GENECEPT ASSAY

Spotlight on Anxiety Treatment

The lifetime prevalence of anxiety disorders has been estimated at 29%, with a median age of onset of 11 years old, posing a particular burden for adolescents.[1] Additionally, anxiety disorders are the most common comorbidity found with major depressive disorder (MDD), with 59.2% of MDD patients also being diagnosed with an anxiety disorder.[2]

The Genecept Assay® assesses genetic polymorphisms that may affect an individual's response to medications used to treat anxiety. Most commonly, SSRIs or SNRIs are first line treatments; paroxetine, escitalopram, duloxetine and venlafaxine are some examples of FDA-approved treatments for anxiety disorders.[3] Two polymorphisms in the promoter region for the serotonin transporter gene (*SLC6A4*) may affect individual response to SSRIs. Porcelli et al. found that patients homozygous for the S allele are at increased risk of poorer response when treated with SSRIs.[4] In the same meta-analysis, non-SSRI antidepressants were not related to poorer response rates with the S variant of SLC6A4. The Genecept Assay also identifies polymorphisms of six CYP450 genes, allowing further refinement of medication and dose selection when using anxiolytics. For example, while paroxetine and venlafaxine are primarily metabolized by CYP2D6, escitalopram is metabolized by CYP2C19, and duloxetine by CYP1A2 and CYP2D6.

Additionally, the Genecept Assay tests for a variant of *CACNA1C*, a gene involved in calcium ion channel function and associated with several mental health conditions, including bipolar disorder, MDD and schizophrenia.[5,6] The variant A allele (rs1006737) has been shown to increase calcium channel currents, implicated in neuronal excitability.[7] In a human study, males with the AA genotype demonstrated exaggerated affective startle reactivity and heightened response to negative affect.[8] The mood stabilizers gabapentin and pregabalin have been shown to be effective for use as anxiolytics and, not surprisingly, bind to calcium channels, potentially moderating excitatory activity in hyperactive circuits of the amygdala and hippocampus.[3,9,10,11]

The results of both pharmacodynamic and pharmacokinetic gene testing are therefore highly useful for evaluating and treating patients diagnosed with anxiety disorders. The ability to simultaneously assess SLC6A4, CACNA1C and CYP450 variant variants provides further leverage when addressing the common issue of comorbidity with MDD.

References

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