

Personality and Heart Disease Genes: A Clinical Perspective

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Abstract

Soon clinicians will have whole genomes of patients. Many genes are helpful in risk stratifying patients. Some under-used genes in heart health risk are the ABO blood group as much research shows linkage with both cardiovascular status as well as behavior and personality.

Keywords: Personality; Genes; Heart health; ABO blood groups; Dopamine beta hydroxylase

Heart disease seems related to heritable factors and random events [1-3]. Since random events are not controllable, heritable and genetic factors are useful in alerting clinician and patient to interventions that are most useful.

The role of adrenergic risks to the heart is well accepted [4]. Stress is linked with heart disease. And the stress can be physical or emotional, the common final pathway being adrenergic effects. While avoidance of stress is ideal, it isn't possible on a practical level, thus the importance of adrenergic blocking medications. But these medications haven't eliminated heart disease.

The adrenergic effects on the heart has negative effects related to the amount and timing of adrenergic exposure. And this idea is consistent with the role of personality in heart disease. Not the busy or even angry heart but the discouraged, frustrated heart is at more risk. The complexity here is that extrinsic events have less effects than intrinsic events, thus the personality factor and genetic factors.

A personality theory that follows closely the autonomic nervous system genes is the NPA (Narcissism, Perfectionism and Aggression) Personality Theory [5]. This theory posits that there are discrete types of individuals relative to

genetics of the autonomic nervous system, those with strong sympathetic, those with weak sympathetic and with highly labile sympathetic nervous system. Not surprisingly, those with highly labile sympathetic system are found to have more heart disease. While the genes have not been identified for this particular personality theory, they appear to be linked to the catecholamines as are the ABO blood group genes with resultant effects on heart disease as well as on personality and behavior [6-9].

So these genes can be used to help identify higher risk patients and to counsel and treat them. The personality is assessed with both the NPA personality guidelines and with the ABO blood group catecholamine linkage. The NPA personality can be assessed empirically: the type of individual most at risk for heart disease has erratic sympathetic effects. The behavior correlate is that there is less sense of power and control over events in their lives and in their health. ABO A and to a lesser extent ABO B are associated with more heart disease risk. The risk is related somewhat to the thrombogenicity of these antigens on the red blood cell as well as personality differences related to linkage of the ABO gene with dopamine beta hydroxylase gene on chromosome 9. Research shows a tendency for high DBH (Dopamine beta hydroxylase) and thus higher norepinephrine dopamine ratio to be in linkage disequilibrium with ABO group A [10-12].

So these principles can be used to identify, counsel, and develop treatment strategies to minimize heart disease.

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