

Comment on 'Patho-Genetics of Posttraumatic Stress Disorder'

Katharina Domschke gives an excellent account of numerous genetic, gene/environment interactions, and epigenetic mechanisms which are linked with the development of PTSD.

It comes as no surprise that a number of well identified gene poly-morphisms, such as the serotonin transporter (5-HTT) gene (Lee et al. 2005, Mercer et al. 2012, Wang et al. 2011), the serotonin 2A receptor (5-HT2A) gene (Mellman et al. 2009), the catechol-O-methyltransferase (COMT) gene (Boscarino et al. 2011) and the dopamine D2 receptor (DRD2) gene (Voisey et al. 2009), among others, are related to PTSD.

Nor is it surprising that genes which relate to the functioning of the hypothalamo-pituitary -adrenal axis, such as the FKBP5 gene (Binder et al. 2008, Boscarino et al. 2011), and the corticotropin-releasing hormone type 1 receptor gene (CRHR1) (Amstadter et al. 2011) should be involved, since this axis is fundamental to the control of stress.

What is perhaps much more important is that the bringing together of this data into a single review article emphasizes that PTSD is a definite biological entity, with numerous factors, all interplaying, as is usual in mental illness to bring about a debilitating and chronic mental illness with severe consequences in terms of functioning and quality of life for the persons suffering from it.

Gene - Environment interactions must certainly play an important part in the pathogenesis of PTSD, as Professor Domschke elegantly shows, for, after all, it is an environmental factor –the sudden exposure to a life-threatening or integrity challenging situation, which is the cause of the disorder. Again, predictably, the serotonin transporter (5-HTT) gene is one gene which is implicated.

Childhood traumata are quoted as increasing the risk for PTSD-related phenotypes like anxiety sensitivity (Klauke et al. 2011, Stein et al. 2008). Recently Childhood Adversity has been shown to cause both a decrease in hippocampal size and an increased propensity to the development of depression in later life (Frodl 2010a, Frodl 2010b, Frodl 2012, Carballedo 2012). Again, while other genes have been shown to also be implicated, it is of no surprise that such genes as the serotonin transporter (5-HTT) gene are involved in this (Klauke 2011). Interestingly, Smaller Hippocampal size has been demonstrated by MRI scans in PTSD, as well as in Depression with Childhood Adversity, and has been shown to be reversible with SSRIs (Bremner 2004, Vermetten 2003).

Epigenetic mechanisms are also clearly also involved, and again, genes which have been discussed for some years now are among those involved, such as

increased methylation of the brain-derived neurotrophic factor (BDNF) gene (Roth et al. 2011) and greater 5-HTT methylation (Kinnally et al. 2011).

Much more needs to be elucidated in the biology of PTSD, for instance there is the question of the effect of repeated trauma, and why some patients develop psychotic symptoms with PTSD while others do not (Agius 2007).

It is true that, as professor Domschke suggests, all of this knowledge will at some future date, enable us to develop personalised choices of treatments for our patients, but at the present moment, I would argue that the value of this review is that it gives a sound biological basis to our understanding of PTSD. PTSD is a disease like any other, and its sufferers deserve our comprehension and help. This may be seen as a somewhat obvious point, but the present author is aware of concerns many British Psychiatrists have expressed in the past that PTSD was often being seen in the UK, particularly by lawyers, as a convenient diagnosis to be used to augment compensation for victims of motor vehicle accidents. This misuse of Psychiatric opinion in the Affluent West is of great concern because it does no credit to the many sufferers who through no fault of their own continue to suffer the effects of numerous serious traumas accrued often in the line of duty and usually through no fault of their own.

In particular, PTSD caused by war is an illness which needs to be prevented.

Is it sensible that war, which used to be described as the pursuit of foreign policy by other means should be seen as acceptable if the stress it causes has such a serious effect on the mental health of its combatants? Perhaps most concerningly, is it acceptable that dictators should wage war on their citizens in urban areas where many children could be exposed to serious mental trauma and consequent illness from PTSD or depression? Until now the mental consequences of war have not been the seriously considered as an issue for the laws governing war, because till now there was no clear biological explanation of the mental trauma caused by war, but now that professor Domschke and others have provided one, should this become another reason for referral to War Crimes Tribunals?

Acknowledgements: None.

Conflict of interest : None to declare.

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