Journal of Psychiatry and Psychiatric Disorders doi: 10.26502/jppd.2572-519X0078

Review Article Volume 3, Issue 6

Hopelessness in Multiple Sclerosis: Psychological and Organic Correlates

Maria Luca, Clara Grazia Chisari, Emanuele D'Amico and Francesco Patti*

Department "GF. Ingrassia", Section of Neurosciences, University of Catania, Italy

***Corresponding Author:** Prof. F. Patti, Department "GF. Ingrassia", Section of Neurosciences, University of Catania, Italy, Tel: +39 095-3782783; Fax: +39 095-3782900; E-mail: patti@unict.it

Received: 04 November 2019; **Accepted:** 12 November 2019; **Published:** 18 November 2019

1. Introduction

Hopelessness, intended as "cognitive schemas whose common denomination is negative expectations about the future" (Beck et al.1974, p.864), results from the combination of affective, motivational and cognitive dimensions, respectively: negative feelings about the future, loss of motivation and negative/uncertain future expectations [1]. Despite representing a frequent feature of depression [2], hopelessness has been recorded in other psychiatric disturbances (i.e. schizophrenia, post-traumatic stress disorder, obsessive-compulsive disorder) and linked to poor outcome [3-5]. In addition, since hopelessness encompasses negative attributions about the future, it is widely recognized as a reliable predictor of suicidal behavior, particularly when trait hopelessness is considered [6].

Interestingly, the impact of hopelessness is not limited to psychopathology, being applicable to physical conditions. For example, hopelessness seems to facilitate atherosclerosis progression, while representing an independent predictor of short-term mortality after critical illness [7, 8]. According to literature, persons with multiple sclerosis (MS) are likely to experience feelings of hopelessness [9], the latter showing both clinical and organic correlates, as discussed in the following paragraphs of this short communication.

2. Keywords: Multiple sclerosis; Hopelessness; Psychology; Neurobiology

3. Hopelessness in MS: Psychological Correlates

MS has a detrimental effect on the patients' quality of life [10] and represents a disruptive event, not only in terms of actual disability, but also regarding the high level of uncertainty characterizing its prognosis. As a result, persons with MS may experience the loss of control over their future, ultimately feeling hopeless, as confirmed in a study reporting the association between negative perception of control (unrelated to functional abilities) and hopelessness in a sample of patients suffering from MS [11].

It is worth considering that hopelessness may exist regardless to depressive symptoms, thus representing an independent common feature of MS [9], particularly when the more "aggressive" forms are considered [12]. The psychological correlates of hopelessness in MS include an impaired ability to cope with the disorder, a poorer quality of life and a higher suicide risk [12]. A study published in 2014 suggested that the rates of hopelessness detected among persons suffering from secondary progressive MS may increase over time [12]. Such an increase may be re-conducted to the accumulated disabilities and the progressive impact of MS on the patients' quality of life, but it may also find an explanation in the organic correlates of hopelessness, as reported below.

4. Hopelessness in MS: Organic Correlates

Research has shown a correlation between hopelessness and impaired central serotoninergic function [13], the latter contributing to the blood-brain barrier disruption characterizing the early stages of MS exacerbations [14]. In addition, an altered blood pressure regulation in response to orthostasis, indicating a dysfunctional autonomic nervous system, is a condition frequently reported in both hopeless and MS individuals [15, 16]. The sympathetic vasomotor dysfunction may contribute to a common symptom of MS, namely fatigue [16], whose occurrence could be anticipated, via hopelessness, in individuals affected by HIV [17]. Moreover, both hopeless and MS patients share a disrupted biological clock, crucially involved in the immunological and metabolic brain alterations favoring demyelination [18, 19]. Early research using PET imaging reported the involvement of several brain areas in the cerebral representations of hopelessness, among which frontal cortex, temporal lobe and hippocampus [20]. A study focusing on grey matter volumes in suicide attempters versus non-attempters related a volume reduction in the left angular gyrus (regulating self-generated thoughts) to higher levels of hopelessness [21]. Other evidence suggests that decreased serotoninergic input and metabolic activity in the ventromedial prefrontal cortex (VMPFC), involved in self-referential processing, may be crucial organic correlates of hopelessness [22]. The alterations affecting the VMPFC determine a less efficient anterior cingulate cortex-VMPFC cross-talk, ultimately favoring impulsive behaviors due to a reduced cognitive inhibition [22]. Interestingly, the dissociation between brain areas is rather frequent in MS and relates to impaired decision-making and neurobehavioral abnormalities [23, 24].

The since here reported findings prompt questions regarding the relationship between hopelessness and MS, as commented below.

5. Conclusion

The evidence discussed in this short communication highlights the link between hopelessness and MS, the former showing both psychological and organic correlates. The neurobiological bases of hopelessness suggest that its link with MS may extend beyond the psychological aspects of this invalidating disorder. In the light of the literature, in fact, one may wonder whether hopelessness is just a co-morbid "feeling" or it may represent a MS symptom, increasing over time due to the progressive neurobiological alterations affecting the brain. Further studies are needed to shed light on the nature and practical implications of the relationship between hopelessness and MS.

6. Disclosure

The authors have no conflicts of interest to disclose.

References

1. Beck AT, Weissman A, Trexler L. The measurement of pessimism: the hopelessness scale. Journal of consulting and clinical psychology 42 (1974): 861-865.
2. Baryshnikov I, Rosenström T, Jylhä P, et al. State and trait hopelessness in a prospective five-year study of patients with depressive disorders. Journal of affective disorders 239 (2018): 107-114.
3. White RG, McCleery M, Gumley AI, et al. Hopelessness in schizophrenia: the impact of symptoms and beliefs about illness. The Journal of nervous and mental disease 195 (2007): 968-975.
4. Boffa JW, King SL, Turecki G, et al. Investigating the role of hopelessness in the relationship between PTSD symptom change and suicidality. Journal of affective disorders 225 (2018): 298-301.
5. Albert U, De Ronchi D, Maina G, et al. Suicide risk in obsessive-compulsive disorder and exploration of risk factors: a systematic review. Current neuropharmacology 17 (2019): 681-696.
6. Burr EM, Rahm-Knigge RL, Conner BT. The differentiating role of state and trait hopelessness in suicidal ideation and suicide attempt. Archives of suicide research, 22 (2018): 510-517.
7. Everson SA, Kaplan GA, Goldberg DE, et al. Hopelessness and 4-year progression of carotid atherosclerosis: the Kuopio ischemic heart disease risk factor study. Arteriosclerosis, thrombosis, and vascular biology 17 (1997): 1490-1495.
8. Orwelius L, Kristenson M, Fredrikson M, et al. Hopelessness: Independent associations with health-related quality of life and short-term mortality after critical illness: a prospective, multicentre trial. Journal of critical care 41 (2017): 58-63.
9. Aşiret GD, Özdemir L, Maraşlıoğlu N. Hopelessness, depression and life satisfaction among patients with multiple sclerosis. Turkish journal of neurology 20 (2014): 1-6.
10. Patti F, Cacopardo M, Palermo F, et al. Health-related quality of life and depression in an Italian sample of multiple sclerosis patients. Journal of the neurological sciences 211 (2003): 55-62.
11. Sinnakaruppan I, Macdonald K, McCafferty A, et al. An exploration of the relationship between perception of control, physical disability, optimism, self-efficacy and hopelessness in multiple sclerosis. International journal of rehabilitation research 33 (2010): 26-33.
12. Patten SB, Metz LM. Hopelessness ratings in relapsing-remitting and secondary progressive multiple sclerosis. The international journal of psychiatry in medicine 32 (2002): 155-165.
13. Van Heeringen C, Audenaert K, Van Laere K, et al. Prefrontal 5-HT2a receptor binding index, hopelessness and personality characteristics in attempted suicide. Journal of affective disorders 74 (2003): 149-158.
14. Sandyk R, Awerbuch GI. The co-occurrence of multiple sclerosis and migraine headache: the serotoninergic link. International journal of neuroscience 76 (1994): 249-256.
15. Czajkowska J, Ozhog S, Smith E, et al. Cognition and hopelessness in association with subsyndromal orthostatic hypotension. Journals of gerontology series A 65 (2010): 873-879.
16. Haensch CA, Jörg J. Autonomic dysfunction in multiple sclerosis. Journal of neurology 253 (2006): i3-i9.
17. Barroso J, Preisser JS, Leserman J, et al. Predicting fatigue and depression in HIV-positive gay men. Psychosomatics 43 (2002): 317-325.

18. Benedetti F, Riccaboni R, Dallaspezia S, et al. Effects of CLOCK gene variants and early stress on hopelessness and suicide in bipolar depression. Chronobiology international 32 (2015): 1156-1161.
19. Lavtar P, Rudolf G, Maver A, et al. Association of circadian rhythm genes ARNTL/BMAL1 and CLOCK with multiple sclerosis. PloS one 13 (2018): e0190601.
20. Gottschalk LA, Fronczek J, Buchsbaum MS. The cerebral neurobiology of hope and hopelessness. Psychiatry, 56 (1993): 270-281.
21. Lee YJ, Kim S, Gwak AR, et al. Decreased regional gray matter volume in suicide attempters compared to suicide non-attempters with major depressive disorders. Comprehensive psychiatry 67 (2016): 59-65.
22. Sobanski T, Bär KJ, Wagner G. Neural, cognitive, and neuroimaging markers of the suicidal brain. Reports in medical imaging 8 (2015): 71-81.
23. Neuhaus M, Calabrese P, Annoni JM. Decision-making in multiple sclerosis patients: a systematic review. Multiple sclerosis international 2018 (2018): 7835952
24. Batista S, Freitas S, Afonso A, et al. Theory of mind and executive functions are dissociated in multiple sclerosis. Archives of Clinical Neuropsychology 33 (2017): 541-551.

Citation: Maria Luca, Clara Grazia Chisari, Emanuele D'Amico and Francesco Patti. Hopelessness in Multiple Sclerosis: Psychological and Organic Correlates. Journal of Psychiatry and Psychiatric Disorders 3 (2019): 241-244.