



Constitutive and Acquired Formulas of Transformation in Multiple Sclerosis

Lawrence M Agius*

Department of Pathology, Mater Dei Hospital, University of Malta Medical School, Malta

Abstract

The developmental biology of injury to myelin and axons in the multiple sclerosis spectrums is a performance profile that permissively develops as neuroinflammation. The plaques and transected axons constitute a representation of an essential cascade formula that persistently promotes emergence of spatial and temporal identity to lesion outline and identity. The incremental re-distribution of edema formation is an idealized constitution that performs the variable progression and permissiveness of multiple pathogenic agents within further derived systems for creation of further lesions within white and gray matter of the central nervous system. Such idealization is symptomatic index for clinically promoted systems of transforming identity as indicated by the appearance of plaques of injury. Such plaques well constitute the neuroinflammation of multiple sclerosis type within agonist systems of multiple derived pathogenesis and derivation.

Introduction

An etiologic or causative theory based on the dynamics of epidemiologic factors is a constructive evidential representation of interactivities borne out by systems that aid in the formulation of transformations between induced and subsequent forms of progression of such lesions as multiple sclerosis. Seizures may be associated with Multiple Sclerosis (MS) and other immune dysfunctional states, and there may be implicated also different co-morbid conditions such as common etiologic factors, environmental triggers or a common genetic predisposition [1]. The inclusion formulae are dependent on activation of various agonists as constituted by formulas that include causation, as inferentially dependent on factors that include pathway representation and transformation. A highly complex series of interactions include T and B cells, with B cells actively involved in cellular immunity by directing the intensity and quality of the cellular immune response [2]. The inclusion of such representational corollaries indicates the identity of progression induction as engineered pathogenesis within the encompassed causative factors. These may be identified through constitutive and environmental systems of such activation. The Signal Transducer and Activator of Transcription (STAT) family is implicated in transmitting cytokine-mediated signals, and this failure of signaling contributes to the etiopathogenesis of MS [3].

The parameters of inclusive formulas constitute representation within the qualitative characteristics of induction of heterogeneous performance of such theoretical agents as infectious causation, genetic inheritance and various ischemic and other promoters in the development of pathways that by natural tendency culminate in transformation of multiple generic promoters in multiple sclerosis. Communication between neurons and microglia promote a proper maintenance of homeostasis in the CNS [4]. Doppler sonography can differentiate the cerebral vasoreactivity in ischemia from demyelination [5]. There is an association of the central vein and lesion severity of MS in the detection of the central collecting vein in MS lesions [6]. Inferential dynamics are unclear within such pathogenic and etiologic dynamics and are inclusive of both permissive and directly activating system formulas such as optic neuritis and other distributional forms of lesion specificity and identity. High sodium/salt intake may lead to reversal of the suppressive effects of regulatory T cells and in promoting shift toward T-helper-1 (Th-1) and Th17 pro-inflammatory phenotypes [7].

Demyelination

Inclusive forms of performance include the discovery of demyelination as precursor and evolving dynamics that further constitute the progressiveness of lesions ranging from axonal injury to cerebro-cortical atrophy and edema accumulation that indeed instigate the various components of activation as well-represented by immune and metabolic degenerative pathways of transforming identity. Stress intricately relates to autoimmune diseases such as MS with catecholamines and

OPEN ACCESS

*Correspondence:

Lawrence M Agius, Department of Pathology, Mater Dei Hospital, University of Malta Medical School, Msida, Malta, Tel: +356-21451752; E-mail: lawrence.agius@um.edu.mt

Received Date: 25 Nov 2019

Accepted Date: 18 Dec 2019

Published Date: 23 Dec 2019

Citation:

Agius LM. Constitutive and Acquired Formulas of Transformation in Multiple Sclerosis. *J Clin Neurol Neurosurg Spine*. 2019; 4(1): 1017.

Copyright © 2019 Lawrence M Agius. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

glucocorticoids affecting the innate and adaptive immune systems [8].

The performance of inclusion of various lesion subtypes in MS is paramount consideration in the identification of realizing agonist interplay that necessitates the constitutive indices of lesions that are heterogeneous in inter-individual display clinically and pathologically. Autophagy is implicated in the removal of intracellular bacteria, cytokine production, auto antigen presentation and lymphocyte survival; autophagy-related gene polymorphic appears related to several autoimmune and inflammatory disorders including MS [9].

System Performance

Immunomodulatory drugs appear to increase the risk of MS [10]. Systematization and realization of activation agonist action are an essential promoting series of formulations that integrate the immune reactivities as well as projected by representing imaging of lesions that spatially and temporally constitute the identifiable features. These support clinical delineation and constitution of the dynamic transformation of multiple sclerosis subtypes or in variant conformations of progressive or relapsing-remitting formulas of initial activation. The P13K/Akt/mTOR pathway targeting may help exert immunomodulation and delay relapses or slow the progression of disability in MS since this pathway regulates cell activation and apoptosis [11]. Plaque generation is a series of constitutive representations that substantially include such manners of performance as apoptosis of oligodendrocytes, the accumulation of macrophages and microglia, and the proliferation of reactive astrocytes.

Chronic cerebrospinal venous insufficiency has been suggested to be implicated in MS etiopathogenesis; however, decreased cerebrospinal flow is affected by atrophy-induced ventricular dilatation that occurs at each stage of MS involvement [12]. Consideration of such activation pathways also range within the inclusive arrangement formulas that constitute the realization of a primary neurodegenerative cascade series that is basic to the development of outlined injury forms of progression. The constitutive identification of such forms of injury as temporally outlined plaques would involve the performance of a series of cascade events as ischemic and metabolic injury of oligodendrocytes that arise within the milieu of astrocytic recruitment. Lower levels of vitamin D, together with low sunlight intensity and genetic variations in vitamin D metabolic pathway genes, are implicated as possible risk factors in MS through effects on immune response and vitamin D metabolism [13].

Cell Injury

The realization of cellular-type injury is etiologically relevant within the progressing demyelination waves as well projected in maturation profiles of plaque constitution. Especially within the performance of persistent activity of a primal disease process, both myelin and axonal components, when depleted, will preferentially target the white matter of the cerebrum and spinal cord. Mitochondrial DNA double-strand breaks within oligodendrocytes lead to demyelination, axonal damage and CNS neuroinflammation [14].

The perivascular accumulation of macrophages and various other conjoint inflammatory elements such as complement and immunoglobulin outline the differential identification of a series of combinatorial factor system or systems that progressively affect the

blood-brain barrier, as formulated by the expanding edges of multiple individual demyelinating plaques.

Profile Constitutions

Propositional profile outline is hence a plaque-based constitution that indicates the significant role played by neuroinflammation as both etiologic and pathogenic progression of activation factors that selectively induce activation of possibly one agent formulas in a given intra-individual phenomenon of performance profile. Seizures in MS in relation to disease activity and progression indicate a distinct clinical prototype of MS involving inflammation of the cortical gray matter [15]. In general, the further increments of clinical severity both include and further transform such pathways as patient age at disease onset and the disease clustering observed within and between irregular geographic distributions. Seasonal variations in onset, relapse rate and activity of various autoimmune diseases, including MS, may implicate infections such as Epstein-Barr virus, low vitamin D levels, ultraviolet radiation and melatonin determining seasonal disease development, severity and progression [16].

The further inclusive formulas allow for the identification of probable agonists or of such constituents as viral multiplication. A possible interaction between gut Microbiota and the immune system may be perceived through regulation by the endocannabinoid system and may be modified by gut disturbances in physiology, antibiotics, stress or diet [17]. The non-identification of a specific viral species as causative agent-induced transformation is a realization of transforming identity within the various cascade derivations of injury to myelin and axon that in turn constitute an inflammatory demyelinating form of neurodegeneration.

The identification of immune dysfunctionality, as well projected by systems of autoimmune attack, appears linked to an induced breakdown of the blood-brain barrier, and the subsequent exposure of neuro-antigens to systemic circulatory agents of promoting transformation. It is the realization of a para-autoimmune performance profile that edema formation, in a peri-plaque distribution, is also indicative of injury to axons in the adjacent normal appearing white matter. The further performance of persistence dynamics would include the stabilization and destabilization of agonists that act as essential cascade formulas and as constitutive identity of neurodegeneratively induced distributions, within both the white and gray matter of the central nervous system. Interferon-beta therapy induces a specific and marked decrease of CD27+ memory B cells and, besides its anti-inflammatory effects, may thus also deplete Epstein-Barr virus housed within these cells as a putative cause of MS pathogenesis [18].

Plaque Constitutional Profile

System dysfunction is a group recognition profile of such processes as supra-antigenicity that promotes distributional lesion display as indeed represented by multiple plaque development and expansion. Multiple sclerosis patients exhibit distinct gut Microbiota profiles when compared to healthy controls [19]. The plaque is a formularized index of disease activity that permissively promotes the index activity of promoted injury to neurons and myelin as well constituted by an axonopathy and is further realized as axonal transection in often early stages of the disease. An autoimmune attack on myelin sheaths is a persistence phenomenon that may span many years of disease activity and constitutes the representative heterogeneity of neuronal/axonal injuries in multiple sclerosis. Beyond such representation is

the further delineation of incremental persistence outlines as new avenues of injury and as constituted by both plaques and cerebral atrophy. The distributional increment of the lesions in an individual MS patient is indicative for further disease activity as projected by the inflammatory components of multiple derivations.

Concluding Remarks

Representation theories of autoimmune attack and of unresolved persistence of myelin and axon pathology are symptomatic indices for the inclusion of a formula of persistence as itself a relative performance outline of the multiple sclerosis plaque that generated neuroinflammation in its own right. The degree or degrees of such representation indicates cascade events that include indices of complement and immunologic factors that agonistically allow the establishment of demyelination/remyelination on the one hand, and of the performance of neurodegenerative processes, as further involving both the parent neuron and the accompanying axon in the cerebral atrophy of multiple sclerosis type. Performance dynamics of this disease are hence permissive in terms of possible viral transmission and establishment within the milieu of a generic neuroinflammation that further promotes distributional dynamics of injury to axons and myelin in essential cascade modes of progressive transformation.

References

- Amanat M, Thijs RD, Salehi M, Sander JW. Seizures as a clinical manifestation in somatic autoimmune disorders. *Seizure*. 2019;64:59-64.
- Lazibat I, Rubric Majak M, Zupanic S. Multiple Sclerosis: new aspects of immunopathogenesis. *Acta Clin Croat*. 2018;57(2):352-61.
- Manochehrabadi S, Arsang-Jang S, Mazdeh M, Inoko H, Sayad A, Taheri M. "Analysis of STAT1, STAT2 and STAT3 mRNA expression levels in the blood of patients with multiple sclerosis". *Hum Antibodies* 2019;27(2):91-8.
- Munich G, Recasens M, Valente T, Almeida B, Gonzalez B, Castellano B. Role of the CD200-CD200R axis during homeostasis and neuroinflammation. *Neuroscience*. 2019;405:118-36.
- Zoghi A, Petramfar P, Nikseresht A, Sakhaee E. Investigation of ischemic and demyelinating lesions by cerebral vasoreactivity based on transcranial Doppler sonography: a comparative study. *Neuropsychiatry Dis Treat*. 2018;14:2323-28.
- Halicioglu S, Turkoglu SA. Role of developmental venous anomalies in etiopathogenesis of demyelinating diseases. *Int J Neurosci*. 2019;129(3):245-51.
- Sharif K, Amital H, Shoenfeld Y. The role of dietary sodium in autoimmune diseases: the salty truth. *Autoimmune Rev*. 2018;17(11):1069-73.
- Sharif K, Watad A, Coplan L, Lichtbroun B, Krosser A, Lichtbron M, et al. The role of stress in the mosaic of autoimmunity: an overlooked association. *Autoimmune Rev*. 2018;17(10):967-83.
- Yin H, Wu H, Chen Y, Zhang J, Zheng M, Chen G, et al. The therapeutic and pathogenic role of autophagy in autoimmune diseases. *Front Immune*. 2018;9:1512.
- Antonazzo IC, Raschi E, Forcesi E, Riise T, Bjarnevik K, Baldin E, et al. Multiple sclerosis as an adverse drug reaction: clues from the FDA adverse event reporting system. *Expert Opin Drug Saf*. 2018;17(9):869-74.
- Mammana S, Bramanti P, Mazzon E, Cavalli E, Basile MS, Fagone P, et al. Preclinical evaluation of the PI3K/Akt/mTOR pathway in animal models of multiple sclerosis. *Oncotarget*. 2018;9(9):8263-77.
- Oner S, Kahraman AS, Ozcan C, Ozdemir ZM, Uniu S, Kamisli O, et al. Cerebrospinal fluid dynamics in patients with multiple sclerosis: the role of phase-contrast MRI in the differential diagnosis of active and chronic disease. *Korean J Radiol*. 2018;19(1):72-78.
- Zahoor I, Haq E. Vitamin D and Multiple Sclerosis: an update. In: Zagon IS, McLaughlin PJ, editors. *Multiple Sclerosis: perspectives in treatment and pathogenesis*. Brisbane (AU): Codon Publications; 2017.
- Madsen PM, Pinto M, Patel S, McCarthy S, Gao H, Taherian M, et al. Mitochondrial DNA double-strand breaks in oligodendrocytes cause demyelination, axonal injury and CNS inflammation. *J Neurosci*. 2017;37(42):10185-99.
- Kavcic A, Hofmann WE. Unprovoked seizures in multiple sclerosis: why are they rare? *Brain Behav*. 2017;7(7):e00726.
- Watad A, Azrielant S, Bragazzi NL, Sharif K, David P, Katz I, et al. Seasonality and autoimmune diseases: the contribution of the four seasons to the mosaic of autoimmunity. *J Autoimmune*. 2017;82:13-30.
- Adamczyk-Sowa M, Medrek A, Madej P, Michlicka W, Dobrakowski P. Does the gut microbiota influence immunity and inflammation in multiple sclerosis pathophysiology? *J Immune Res*. 2017;2017:7904821.
- Rizzo F, Giacomini E, Mechelli R, Buscarinu MC, Salvetti M, Severa M, et al. Interferon-beta therapy specifically reduces pathogenic memory B cells in multiple sclerosis patients by inducing a FAS-mediated apoptosis. *Immunol Cell Biol*. 2016;94(9):886-94.
- Chen J, Chia N, Kalari KR, Yao JZ, Novotna M, Paz Soldan MM, et al. Multiple sclerosis patients have a distinct gut microbiota compared to healthy controls. *Sci Rep*. 2016;6:28484.