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Editorial
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A Shifting Paradigm: Central Nervous System Diseases and Metabolic Health Concerns

*Nicholas Van Halm-Lutterodt[1,2] and Yu Lun Xu[2]**

[1]Department Orthopaedic Surgery and Neurosurgery, Keck Medical Center of USC, USA

[2]Department of Neurosurgery, Beijing Tiantan Hospital, China

Editorial

This letter stems from an important clinical observation of patients with Central Nervous System (CNS) disorders including tumors and we project this piece of documentation would shed an insight towards the approach of these defined subsets of patients. In general medical practice, the clinical evaluation of metabolic profiles and states as well as its outcomes in patients have been very much appreciated in patients with cerebrovascular, cardiopulmonary, Hepatobiliary, gastrointestinal, endocrine and nutritional disorders. Nevertheless, remnant episode(s) sometimes remain even after offering proposed treatment regimens and most often undulate patients with severe refractory metabolic concerns towards a mortality sequel. The concept and recognition of metabolic disorders in neuro-medical and neuro-surgical patients continue to provocatively lambaste medical experts with evolving phenotypic challenges, some of which are complicated with neuroendocrine and/or neuropsychiatric elements, often narrowing our opinion options and more importantly, making choice of treatment quite skeptical for an increasing number of patients in recent years. For instance, taking into account spinal neoplasms or tumors, it is undoubtedly true that spinal tumors diagnosed as either malignant or benign, all stem from either primarily or secondarily induced aberrations in the genetic architecture that result in mutations and consequently, neoplasms. Most finale determinants of neoplasms development require progressive internal environmental adaptive changes over time depending on the specific presentations of patients; such as long-standing exposure to inflammatory response, metaplasia, anaplasia with concomitant recruitment of the immune cells, cytokines and cell-cycle checkpoints factors predisposed to worse outcomes when biochemical flaw(s) maturely establish *in vivo*. Firsthand experience shows that the mechanisms involved are proven to be very complex, however, it is essential to highlight on and project forward two-dimensional theories that carry the potentials for unlocking the chains of these conundrums genetic and environmental factors.

Genome-Wide Association Studies (GWAS) indicate that the concept of genetics alone cannot fully explain and provide satisfactory account of disease onset, progression and final outcomes in studied patients and populations. This red-flags the importance of exploring potential external factors originating from our environment that impact health and disease outcomes. Deduced theories of the interplay between our inherited genes (susceptible or resistant) and the surrounding environment (external factors such as dietary patterns, nutritional status, lifestyle, social habits, educational level, etc…) and how these entities interact to promote health or disease have become a groundbreaking facet of research focus. Interestingly, emerging number of researchers and studies in the literature are directing more focus on the importance of metabolic health as an entity of the environmental aspect, the part that has a direct role in disease and health status. This model shift apparently appears to hammer more on the conceptual theory of the effects of metabolically induced oxidative stress. We encounter many patients with this phenotype presentation who have not been optimized by other consulted physicians. It is therefore essential to emphasize on the need that necessitates careful re-evaluation of patients with metabolic disarrays. Oxidative stress most often involves mechanisms that release of oxygen-free radicals *in vivo*. It has been reported in countless number of studies that oxidative stress and the release of these harmful redox elements result in unhealthy 'internal environment' modifications that negatively impact the normal function of cells and tissues; with undesired prognostic outcomes occurring when adaptive mechanisms are diminished or lost.

Variations still exist in the local approach and management of patients with CNS disorders, most often centered on medical and surgical interventions. Little is offered by physicians and surgeons

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Correspondence:
Yu Lun Xu, Department of Neurosurgery, Beijing Tiantan Hospital, Capital Medical University, 6 Xili Street, Dongcheng District, 100050, Beijing-China, Tel: (+86)-10-67096507; Fax: (+86)-10-67096507; E-mail: xuhenniu888@qq.com

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regarding nutritional, endocrine and/or metabolic concerns. For instance, say, a patient is randomly diagnosed with CNS tumor in a cardiovascular center. First of all, what is conventional is to stabilize and optimize the patient within the cardio-center and re-schedule an appointment for neurological consultation, not a dietitian, nutritionist or endocrinologist. However, the potential or greater cause of this CNS pathology may most likely be stemming from a cause other than neurological. It is pragmatically recommended that neurologists, including all physicians and surgeons re-visit their knowledge background on nutritional, metabolic, endocrine as well as psycho-social aspects to enhance the efficiency of their overall armamentaria in practice. These are the pitfall areas encountered in current medical practice because we often get accustomed to or too comfortable in our specialty areas of practice and with time, wane away from necessary integrative skills required by other relevant areas in practice that evaluates our armamentaria on critical bases.

It comes with no doubt to document that, despite all currently existing challenges in practice, disease management and treatment outcomes have significantly improved over the decades with advancing technology against a backdrop of patient factors and clinical presentations.

It is therefore pertinent to highlight the importance of necessitating and laying emphases on this issue associated with comprehensive patient-specific approach that essentially lacks incorporated aspects of nutritional patterns, metabolic profile and status, life style and habits, physical activity status, epigenetic as well as neuropsychiatric and psychosocial concerns effectively in our mundane practice.

It is with these pearls of invested evaluation efforts that experts in specific disciplines can properly understand and address with comprehensive approach, the daily encountered disease icons with complex interactions of cerebrovascular disorders and/or cardiovascular disorders and/or cardiopulmonary disorders and/or disorders neoplasms and/or neuroendocrine disorders and/or metabolomics as well as other acute disorders and/or chronic co-morbidities.

On 26th April, 2018, a typical illustration of an intriguing potential translational science study published by the New England Journal of Medicine (NEJM) shows an emerging clinical inference of the role of diet quality in health and neoplasm outcomes. In this study, it was discovered by Chen. that two-key tumor suppressor genes; PTEN and PML, known to be associated with prostate cancer were functionally limited by obesity induced by high-fat diet and it was found that the status of high fat diet predisposed the studied species to enhanced cancer metastases. This outcome further demonstrates how essential environmental factors play role in pathological progression and outcomes of disease and the crucial step(s) needed to identify and intervene in this advanced age of medical praxis.