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Complication as an Essential Principle in Medical Science

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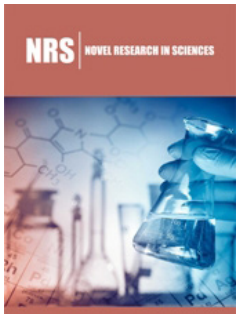

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Abstract

Comp theorem integrates available variables that determine the complication level of a disease. The concepts amalgamate those vital components that influence and form the body of what we see as an enigma in the treatment process by competent practitioners either in the hospital or a laboratory. It depicts progress in bringing medical sciences closer to their counterparts in physics and chemistry, which already had obtained recognition concerning its profuse employment of formulas and equations to strengthen their research, innovation, and technology. In this article, the author uses Cauchy limit to elucidate the complications that influence the treatment process and the survivability of the patient.

Keywords: Complications; Covid-19; Influencers; Limit theory; Survivability; Theorems; Treatments

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Introduction

Scholars have commenced developing theorems to bring the medical sciences together in a theoretical manner. One of the theoretical laws that will gain recognition is the Comp theorem that integrates those variables one conceives to determine the complication level of a disorder or disease. These theoretical underpinnings amalgamate those vital components that influence and form the body of what we see as an enigma in the treatment process by competent practitioners either in the hospital setting or in a laboratory that lies far away from the scene of the particular disorder. It is progress in bringing medical sciences closer to their counterparts in physics and chemistry, which already had gotten recognition concerning its profuse employment of formulas and equations to strengthen their research, innovation, and technology.

The Goal of The Study

This article impresses upon the practitioners' minds the importance of recognizing the intricacies involved in complications as a phenomenon in medical practice. This principle requires in-depth study and analysis to comprehend it well. It calls to the attention how other fields, such as physical sciences and chemical sciences, minute analysis, and perseverance, have led to a critical understanding of microscopic substances. Even in the medical disciplines, the studies of some organic cycles have brought scientific gains in this century. An example is the study of the origin and function of mitochondria. Delineating complication as a theorem of medical science will enable us to set it aside for more rigorous researchers to devote their precious time to unraveling the mysteries of its role in general in disease intensification.

Literature Review in Brief

Globally, there are over 160 million confirmed cases of COVID-19 and more than 3 million deaths. Those infected individuals recover, but a significant proportion continues to experience symptoms and complications after their acute illness. For example, patients with 'long COVID symptoms experience a wide range of physical, mental, and psychological symptoms. Data shows that the ten most prevalent reported symptoms are fatigue, shortness of breath, muscle pain, joint pain, headache, cough, chest pain, altered smell, altered taste, and diarrhea. Apart from these, there are other common symptoms, such as cognitive impairment, memory loss,

anxiety, and sleep disorders. Complications reveal themselves in impaired quality of life, mental health, and employment issues. This has made patients require multidisciplinary care involving the long-term monitoring of symptoms to identify potential complications, physical rehabilitation, mental health, and social services support. These complications make us vigilant about healthcare systems as a whole and the need to ensure efficient and effective responses to future health challenges [1]. In Hughes's book on "Complications," he describes in-depth how the various authors set out to deal with a complication in their articles. He says these as he comments on them that on dealing with Microscope, over the past decade, at meetings and in journals devoted to neuropathology, I have watched with increasing dismay the introduction of this powerful tool to this subject, for I fear that many neuropathologists have not accomplished a satisfactory transition from light to electron microscopy. He asks this question: "How many of one's early years are devoted to understanding learning what one sees down a light microscope on a normal, not to mention a pathological, preparation?" He continues, so is it not reasonable to expect a neuropathologist to undergo a similar period of discipline in electron microscopy of the normal central nervous system? Unlike other tissues, the morphological ramifications of the nervous system's fine structure are vast fixation still present innumerable problems. The nature of the extracellular space is a subject in itself, and experts still disagree about the identification of the different sorts of neuroglia, and the literature on the synaptic fine structure is in itself almost overwhelming [1]. Hughes believes that the neuropathologist must all be it has at his fingertips if he is going to make a competent analysis of the pathological changes in his micrographs. Thus, he continues, the first two chapters on normal neuronal and neuroglial fine structure are deceptively brief and lacking in major references. One of his collaborators has used the rabbit for a model experiment in hereditary ataxia. In an otherwise interesting article, electron microscopy seems so uncritical. He believes that the study of comparable sites in normal animals is needed before one can perceive that, for example, splitting of the myelin lamellae and glial swelling is strictly a feature of the pathological situation [1,2].

Effects of Complications on Treatments in Medical Practice

But the complications involved in medical diagnosis and treatments are enormous such that its meticulous analysis of late has yielded a lemma and, consequently, multiple theorems [3-10]. The work has also contributed to theoretical medicine's study and has unfolded numerous theorems, which could be regarded as essential foundations for the medical sciences [11]. The Comp Theorem illuminates the nerve-wracking character of disease symptoms and their dangerous effects on illnesses that result in complications. These copious indicators make the contraction of Coronavirus (COVID-19) the most dangerous illness and also difficult to handle. The same thing can be remarked on terminal diseases that characteristically exhibit many symptoms. The Comp theorem also connects with The Zero State theorem. The latter obtains its name from the spread of a disease judged an infectious disease. This theorem was discovered in research in medical science [11]. It states that the interval between when there was no disease and therefore had to be considered non-existence, and the period when a disease commences to spread, indicate that there must be a point in time when the disease was in the zero states. That is, there was the original infected person who later transmitted further to other individuals. The current theorem that we intend to expatiate on says that if we accept the common postulate that there are latent symptoms that we call asymptomatic, and there also exist symptoms proper, then we can state that for every disorder (Ω), there are at least one or more symptoms $\mathcal{L}$ such that, $\mathcal{L}$ n (1, … N)≥Ω. Equivalently, Lemma states that while (in principle) there is one disease involved in medical diagnosis, at a time, the field of symptoms could be in multiple conditions that often baffle practitioners concerning how to deal with the sea of diseases and how to treat them efficiently with effective new methods and technology.

Mathematical Statement and Analysis of the Comp Theorem

The comp theorem is about the hypotheses regarding complications, which exist in the medical fields as practitioners meticulously and diligently set out to deal with diseases and treat them efficiently, using modern innovative techniques and advanced technology in their professional fields. It is an alternative to lemma one, which puts forward the idea of a single disease possessing multiple symptoms or conditions that complicate matters about disease treatment and its comprehension. The comp theorem, therefore, is an alternative to Lemma 1. It is a form of the theorem, which states that if (Ω) has finitely many symptoms/conditions, then

$$\sum \mathcal{D}\rho.\mathcal{L}\ (1, \ldots, N)\ \text{ฑ}\ \delta c\chi.\ dt \cong \Omega C$$

$$\mathcal{L} \varepsilon\ \Omega$$

where $\mathcal{D}\rho$ represents the causes of the disease, ($\mathcal{L}$) is a set of symptoms, (Ω) is a disease, and (n) a certain number, δcχ represents the degree of complexity, dt represents time, ฑ immune system of the body or the body's capacity to resist or deal with the disease, and (C) represents complications. The left-hand side has the negative sources, which we call "influencers," and the right-hand side of the equation is known as the "incomprehensible." The practitioner's ability to deal with the disease depends on his knowledge of the relationship between the latter and the former. The Comp Theorem states that the sum of fields of symptoms over the disorder associated with the condition, which is called "influencers," is equal to the gravity connected with complication over a specific period of the existence of the disease, which is "incomprehensibility." Intuitively, it states that the sum of all symptoms of a particular disease gives the net aggregate of the complication a condition possesses. When the left-hand side of the equation is incredibly high, it signifies more complexities of a higher degree. But as the left-hand side approaches zero, it shows complicated-free disease/disorder or the reduced complexity of the disorder.

"Influencers" and their Characteristics

The "influencers" of a complicated disease lose their effects as their diminishing value approaches absolute zero. It presses for the diminishment of a complication (Box 1 & 2).

Let $f(x)$ be a function that is defined on an open interval X containing $x = a$. (The value $f(a)$ need not be defined.)

The number L is called the limit of function $f(x)$ as $x \to a$ if and only if, for every $\varepsilon > 0$ there exists $\delta > 0$ such that

$$|f(x) - L| < \varepsilon,$$

whenever

$$0 < |x - a| < \delta.$$

Box 1: Definition of Limit by Cauchy.

One-Sided Limits

Let $\lim x \to a-0$ denote the limit as x goes toward a by taking on values such that $x < a$. The corresponding limit $\lim x \to a-0\ f(x)$ is called the left-hand limit of $f(x)$ at the point $x = a$. Similarly, let $\lim x \to a+0$ denote the limit as x goes toward a by taking on values of x such that $x > a$. The corresponding limit $\lim x \to a+0\ f(x)$ is called the right-hand limit of $f(x)$ at $x=a$.

Note that the 2-sided limit $\lim x \to a\ f(x)$ exists only if both one-sided limits exist and are equal to each other, that is $\lim x \to a-0\ f(x) = \lim x \to a+0\ f(x)$. In this case,

$\text{Lim } x \to a\ f(x) = \lim x \to a-0\ f(x) = \lim x \to a+0\ f(x)$

Box 2: One-Sided Limits by Cauchy.

Factors of diminishment of a complication

1. There is a lack of available symptoms to intensify the disorder.

2. Low complexity is observed and registered with the disorder.

3. The immune system, which resists the disorder to crush the patient is strong and could lower the development and progress of the disease.

4. "Incomprehensible" becomes comprehensible, and this understanding will affect the patient's treatment, which increases his survivability to continue adapting to life.

5. The "residue energy" of the influencers becomes very insignificant because of the frustration it receives from the immune system.

These curative effects restore proper energy to the patient and make him enjoy a healthy life. The physical transformation that occurs to the patient eliminates the incomprehensible of the unlimited power of energy and enjoyment of food nutrients that replenish the lost energy.

Discussion and Concluding Remarks

The Comp Theorem begs for a situation where one could employ Augustin Louis Cauchy's theory about a limit to prove it. In the area of treatment, whether pain treatment or any other disease, the influencers may cause the complication to a higher degree as it could provide the interval between non-existence/fewer ratings, such as (-0,0) on the left-hand side and a higher rating up to 100 on the right-hand side. Thus, through generalizations, patients may be experiencing either these lower ratings of these variables or higher ratings of the variables. While a balance will not necessarily help the practitioner, a reduction on the left-hand side other than the right-hand side will indicate progress in the treatment initiative. This may decrease to zero and will register success in treating or curing the patient. The dimensions of the influencers will lead to danger and increased susceptibility of the patients losing their

lives or becoming fragile and thus not being allowed to respond to successful treatment.

Declarations

Ethics declarations

Regent University Ethics Committee on Research permitted us to participate and gave their approval and consent. Informed Consent and Anonymity complied.

Consent for Publication

Not applicable

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