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Research Article

A Treatise on Neurological Theorems in Medical Sciences: An Extension of German Physician Robert Hermann Koch Postulates

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Abstract

Investigations have shown that scientific fields that have developed their fundamental theorems grow faster. These progressive fields use these theorems to further their rigorous direction in their emerging research fields. The medical fields need its fundamental theorems to help accelerate research, developments, and modern innovations. The purpose of this treatise is to unveil and, more importantly, stress the new development of theorems in these significant areas of research. In this treatise, we discuss the source of the three fundamental theorems of medicine. There is an attempt to deduce more theorems and certain notions from them. The results of this treatise lead to an essential lemma, which enables us to deduce further certain theorems, such as the Koch-Relsman-Fredericks Theorem, that show the existence of some factual statements in diagnostic medicine. Clinical medicine also has its' fundamental theorems, which can indicate new scientific progress, the source of rigorous and deductive science.

Preamble

Scandinavian scholars have recently developed successful theories and theorems in diagnostic medicine, which inhere in the medical sciences to unify the medical science disciplines. The theorems have mostly concentrated on Koch's postulates, developed by a famous German physician who propounded them through his discovery of anthrax and many other diseases that led to our understanding of how microbes transmit diseases to humans. Koch applied his postulates to describe the etiology of cholera and tuberculosis in which bacteria originate. Scholars later argued that Koch abandoned the universal application of the first postulate altogether when he discovered asymptomatic carriers of cholera and, later, typhoid fever. Asymptomatic or subclinical infection carriers are now known to be a common feature of many infectious diseases, especially viral diseases such as polio, herpes simplex, HIV/AIDS, hepatitis C, and COVID-19.

In the following immediate sections, we would like to examine Koch's postulates again and their current understanding and appreciation by scientists in modern research to be able to make an extension. We shall deduce other essential theorems from them and other notions which could be used as models in the study of medicine in the microbial world.

Aims of the Study

The treatise aims to examine the fundamental laws of medical science and other equally important laws of the field to make an extension of them. To do this, the four postulates of Hermann Koch will be investigated as well to see the contribution they have made in the field of infectious diseases. While we shall unveil criticisms, the intention is not to undervalue the postulates but rather to show how scholars have scrutinized them to guarantee their place in academic literature and used them in the wake of technological advances.

Method

We see the need to employ the deductive method to accomplish the aim of this treatise. The deductive approach premises its analysis with axioms, definitions, and notions and then tries to deduce theorems from them [1]. It leads to theory development which causes a dynamic understanding of the behavior or the property to be comprehended. Its uses have been prevalent since antiquity and have led to the advancement of modern research and the proliferation of the different disciplines that we witness today. The results will unveil new knowledge and theories that can be useful in infectious diseases disciplines.

Preliminary Notes

The Fundamental Laws of Neurology and Medicine

Both the studies by Ayim-Aboagye (2019) [2] and some scholars at the University of Uppsala Surgical Sciences Department have revealed the nature of these medical laws in neurology and diagnostic medicine. [3,4] They are fundamental laws because they deal with the relationships between diseases and their intrinsic and extrinsic symptoms; between diseases and their transmission to other persons; and finally, between the physician and their positive relationship with their patients. Thus, the fundamental laws cut across different

fields of the life sciences [5]. The fundamental laws revolutionize the medical sciences and make them appear more comparable to the physical and chemical sciences, which decades ago had been rigorous and possibly used equations and scientific laws to govern their research in numerous scientific journals in the universities. The fundamental laws of medical science listed by Ayim-Aboagye (2019) state:

Theorem 1. "No disorder is without a symptom; vice versa, no symptom is without a disorder."

Theorem 2. "Disease can be transmitted from one individual to another if it is adjudged to be an infectious disease."

Theorem 3. "Disease cannot be diagnosed by the patient unless there are within his presence competent experts who can advise the necessary steps to deal with and treat the disease." [6]

There are alternative statements of these medical laws, which are as follows:

Theorem 1. "If a practitioner diagnoses a patient as possessing a specific disorder, then there is a corresponding symptom(s) on which the practitioner has based his competent decisions/predictions."

Theorem 2. "In cases where a disorder is judged to be an infectious disease, there is a likelihood that a patient can transmit this disorder to other individuals irrespective of who comes into contact with him or her."

Theorem 3. "A diagnostic procedure involving a disorder cannot be handled in isolation by a patient; it is attended to and steered by a competent practitioner who confronts a distressed patient that has voluntarily sought help." [5]

These laws have since been formulated mathematically. Let us observe the following:

Mathematical Formulations of the Theorems

Theorem 1. "If an individual Q is diagnosed as having a disorder D, then there is a corresponding symptom C which lurks behind D; then $Q_ə = C \cong D$, and the vice versa is also true $Q_ə = D \cong C$. Where ə represents the condition of Q."

Theorem 2. "Suppose that $Q_ə$ were to be the distressed patient in a zero-point condition (Zç) who is distressed, petrified, and disequilibrium, then the following (could result) patients can contract the illness from $\{Q_ə \rightarrow Q_ə1 \rightarrow Q_ə 2 \rightarrow Q_ə 3 \rightarrow \ldots Q_ə N\}$. The formula then becomes $Zç = Q_ə \rightarrow Q_ə1 \rightarrow Q_ə 2 \rightarrow Q_ə 3 \rightarrow \ldots Q_ə N. 3$." The patient $Q_ə$ is considered to be Patient Zero (0).

Theorem 3. "Let Q be in the zero-point condition (Zç) of illness $Q_ə$ that is distressed, petrified, and disequilibrium. For every zero-point condition $Q_ə < S > Q$. Then, the following inequalities hold at any zero-point condition: $Zç = Q_ə < S > Q$. This means $Q_ə$ is subservient to S, the practitioner that is more knowledgeable than Q in the encompassing context of medical diagnosis." [6]

Fundamental Laws in Perspective in Modern Scientific Research

The development of fundamental laws and their notions/concepts around theorems have become known in modern research, such that it is likely to contribute to research in experimental medicine as a science. Behavioral scientists also see this as an opportunity to unify the field of medical science. They will then need to exploit its use in their research fields and make explicit citations of them to bolster their popularity. Though the theorem's discovery would not be like the discovery of penicillin [7], DNA [8], or Koch's famous postulates themselves [9], they will present competitive mention in journals in the life sciences. Future modifications, generalizations, and refinements are also required to make them more acceptable in the larger medical fields. Scientists should see these laws as appropriate because they are exemplified and enshrined in Koch's laws. These notions will be used, especially in experimental medicine to increase its scientific terms. They must also function in the future development of medicine and allied public health sciences.

It is from this perspective that current scientific publications in Scandinavia concerning diagnostic medicine have moved into center stage in experimental medicine. One notices of late that Experimental science has become part of a lively scientific conversation with other empirical sciences. These have increased the source of practical advice and the design of research projects [3,4]. Experimental medicine and fundamental laws of medicine must incorporate more varied and realistic models of human beings in concert to deal with the complexities of disease mechanisms.

Neurology and the Axioms of Superiority Complex Laws

The fundamental theorems of medical science were a direct consequence of the six axioms of the superiority complex theory, which made a theory from neurology and diagnostic medicine. This paper was first published in the *International Journal of Emerging Trends in Science and Technology (IJETST)* and, it is indexed in the Index Copernicus, a moderately higher-impact journal [2]. The deductive method allows us to deduce new theorems, propositions, and lemmas as consequences of axioms, definitions, and certain notions [1]. Through the following axioms, we gained illumination and derived these theorems that form the basis of the fundamental laws of medical science. The axioms are as follows:

Axiom 1

Associated with every psycho-superiority complex individual is a master mentor, whose constant visualization of him (the Mentor) causes an abnormal mental state. This mentor can be an unseen God/god, an organization, or an individual who has written several books. The mentor becomes a strong controlling figure in his imagination or thoughts.

Axiom 2

If S is an obsessed individual with a superiority complex, the probability that D, a son of S, will turn out to be a superiority complex individual will be high. D's actualization of this condition will later be that determinant to his becoming a member of an underground organization, sect, and cult or joining occultism.

Axiom 3

Whenever a segment of the ruling class/figure or a leader becomes obsessed with superiority, the inhabitants suffer, and this is also the experience of the foreign inhabitants who sojourn in their midst and this leader or a figure, if he is not controlled or removed could cause blunder or a catastrophic end in the whole surrounding regions.

Axiom 4

There is an association between the superiority complex and the kind of continent the individual hails from. While not making a specific statement regarding this, one can assert that the human race as a whole may have a relationship (yearning for) with a superiority complex.

Axiom 5

Where superiority complex ideas are the norms of society, then the probability is that there will be a greater proportion of people suffering from it and, therefore, there will not be any difference between the normal and the abnormal perception of the self. In other words, a clear demarcation between the normal and abnormal could not easily be made.

Axiom 6

Those acting as the "hidden forces" (i.e., hidden variables) who operate freely in the high and low areas of the complex prone societies, causing distractions, destructions, and sabotages, shall afterward become the same ruling class or elite [2].

These above axioms enabled us to deduce an important theorem and its corollary in medicine that is considered the fundamental theorem for the theory of the superiority complex. These state that Individuals who harbor complex notions and ideologies tend to allow these repressed feelings to control their unconscious minds, which later reveal themselves in abnormal behaviors. Some supports originate from Freudian and Jungian theories, in addition to more recent theories advocated by some British Psychologists, which also state that the unconscious negative repressed feelings and complexes may control the inner and outer lives such that individuals may suffer the rest of their lives amidst a performance of criminal activities in their lives as patients.

Neurology and the Fundamental Theorem and Its Corollary Statement

What resulted from these above axioms was the fundamental theorem which states in neurological terms that: Not only has [the individual who possesses] complex repressed feelings and ideas some disorder, but that where there is disorder there must also be [a revelation of] complex ideas.

Thus, the Formula $S = D \cong C$ was born.

Where (S) represents the Superiority complex (D) represents disorder (C) represents Complex ideas [2].

Neurological Concept of *Minutron*

The *minutrons* concept was introduced to define the highly charged mental ideas which individuals possess in their brains, which is the white matter. They are manufactured/incubated in the individual's unconscious and can easily be transported into the preconscious and later to the consciousness of the individual. Like electrons that carry electricity in solids, *minutrons* carry the charged ideas in the brain field as well as transmit charges through wave medium to another individual. It was connected with White Matter that fills nearly half the brain of the natural man. This brain substance consists of millions of cables that (often appear whitish) connect individual neurons (what is usually called grey matter) in different brain regions, like trunk lines connecting telephones across a country [2]. The characteristics of the *minutrons* are that: (1) They possess mass and speed; (2) The acceleration of *minutrons* is unobservable; (3) The reception of a *minutron* causes a reaction in the brain field; (4) There is the intensity of the charged minutrons; and finally, (5) The *minutrons* concept can be measured, and it requires energy, in the form of mc^2 and they can be comparable to electrical current [2].

Neurology and the Conspiracy Theorem Formula

Symbolically, we write the formula like this: ¥ = (Φι+ ϑu) ⊗ ∂ >Ωι Where ¥ represents a complex reaction field, and ι represents the minutrons of individuals.

Where ¥ represents a complex reaction field, and ι represents the *minutrons* of individuals. Here Φι is the parent complex, ϑu the co-aid complex, ∂represents the work to be done (the work function of the minutrons or, in other words, the energy needed to cause the non-equilibrium to the resultant complex), and Ωι the resultant complex, which is otherwise known as the sufferer's madness. Thus, when there is (Φι+ ϑu), ¥ = 0, which indicates no reaction in the complex fields. But (Φι+ ϑu) ⊗ ∂means *minutrons* are charged, for there is some work being done. This can be represented by θ. Where we therefore have (Φι+ ϑu) ⊗ ∂>Ωι, it indicates that ¥ = 1, a strong indication that a complex reaction is going on. It also provides us with the complete complex reaction fields. The co-aid complex can be increased to encompass many different persons, depending on the magnitude of the problem and the work to be done to enable the plot to be accomplished [i.e., (ϑu+ϑι2+ ϑι_+ϑιч…ϑιn) ⊗∂]. Between the superiority complexes, that is, the parent complex, and co-aid complex/complexes, the *minutrons* travel in wave mediums (λ). This complex relation holds, in the whole world of human relations, for where there is no conspiracy the complex action field reduces to (Φι+ ϑu), which is ¥ = 0, representing a normal return to the amicable relationship [2].

Neurology and the Complex Action Law

The conspiracy theorem enabled us to derive a new theoretical law called the "Complex Action Law" which states that: In any complex action field there exists always the parent complex, which is the psycho-superiority complex individuals, co-aid complexes, that is, the accomplice and the resultant complex, otherwise known as the sufferer complex. The product of the work accomplished by the parent complex and co-aid complex is greater than the resultant complex. Here it can be remarked that this is an empirical law gained through the analysis of a theoretical law. For, a theoretical law helps to explain empirical laws already formulated and to

permit the derivation of new empirical laws. Because we wanted to embellish the new law to encompass the speed of light and the wave medium which is common in Mathematical Physics, the new Complex Action Law formula, which is a neurological law was written like this:

Neurological Concept of Minutron

$¥ = (\Phi\iota + \vartheta\iota\iota) \otimes \partial > \Omega\iota \times (mc^2/\lambda^2)$

$¥ = (\Phi\iota + \vartheta\iota\iota) \otimes \partial > \Omega\iota \, .mc^2/\lambda^2$

Where c^2 is the speed of light, m is mass, and λ^2 is the wavelength or the distance traveled by the *minutrons*. This formula was considered valid and more appropriate if we understand that *minutrons* only get to others through these faster mediums.

Still, the formula can be reduced to appear like this:

$¥E = W\iota \, mc^2 > \Omega\iota/\lambda^2$

Where E is the energy of the complex action, Wuis the work done; n is any integer from 0 to ∞,c^2 velocity of light, and λ^2 is the wavelength, that is, distance traveled by the minutrons [2].

Remarks about its Neurology and Medical Diagnosis

The above axioms, definitions, and notions (not mentioned here) were the consequences of the fundamental theorems we unveiled and discussed together with Bayes's theorem [10]. They were to become the principles that could guide practitioners in their work regarding medical diagnosis. The fundamental theorems say that all illnesses/diseases have obvious and latent symptoms therefore researchers should investigate them thoroughly. Bayes's theorem says that we should recognize the best decision-making method that should make one utilize this theorem so that we will obtain sound and quick judgment to arrive at an accurate diagnosis. Bayes's theorem has aided medical practitioners to surmount many well-known cognitive errors that have taken place in medical diagnosis. There are important examples such as ignoring the base rate, probability adjustment errors (conservatism, anchoring, and adjustment), and order effects [10]. The fundamental theorems speak about the concept of disease, which also furnishes us about the geographical environment and the social context importance. Transmitting from one patient to another disease can work havoc which suggests that we must study knowledge about infection procedures and how to curb them or assess them using the appropriate methods. These medical theorems are necessary consequences of the principles, so if we accept these principles, then we must also accept the theorems.

JFA Murphy [11], an editor of a Medical Journal in Great Britain says: All clinicians acknowledge the importance of reaching the correct diagnosis in medical practice. It impressed every medical student and trainee from the outset. Khuller *et al* [11] argue that diagnosis is more important than ever before because the patient has so much to lose when there is a misdiagnosis. A diagnostic error may result in the patient

being denied timely, effective therapy or being administered potentially toxic, incorrect medications. Prompt treatment could return a patient to full health and the wrong diagnosis can be avoided if practitioners are careful with the good laws provided. Getting the appropriate diagnosis is key for the patient. In addition to being made in a timely fashion, we must communicate the diagnosis and its implications effectively. The key issues have to do with timeliness and accuracy. Timing may be minutes in acute situations or weeks for subacute disorders.

Koch's Postulates are Central to the Unifying Laws of Medical Science

Koch postulates come in as the modern scientific postulates to prove the second fundamental law of medical science. Koch's postulates published in 1890, are a set of criteria that establish whether a particular organism is the cause of a disease or not. Presently, Koch's postulates [9,12,13] are taught in universities as a demonstration of the rigor and legitimacy of clinical microbiology. The four postulates Koch are as follows:

• The microorganism must be found in diseased animals and not found in healthy animals.

• The microorganism must be extracted and isolated from the diseased animal and subsequently grown in culture.

• The microorganism must cause disease when introduced to a healthy experimental animal.

• The microorganism must be extracted from the diseased experimental animal and demonstrated to be the same microorganism that was isolated originally from the first diseased animal.

Let's go over these four postulates once more, and unveil the recent criticisms leveled against them. We are not to undervalue them but to elucidate their contribution to infectious diseases in the world of microbes.

Koch First Postulate.

Pathogenic organisms are found in healthy animals, producing disease in only a tiny fraction of the infected individuals. The Bartonella species can live in blood without causing disease, producing asymptomatic bacteremia in the wide assortment of animals that they do infect. Scholars, therefore, no longer assume that blood samples from healthy animals are sterile. The mechanism of Bartonella transmission from animal to animal is not fully comprehended, but as for the arthropod vectors (ticks, fleas, and lice), they are suspected, as well as scratches and bites from infected animals (e.g., cats and rats). Eight species of Bartonella are presently in human pathogens. Two such species were known for some time, but that was many years ago. Presently, the Bartonella species cause a variety of phenotypically dissimilar diseases such as Bartonella bacilliformis → Carrion disease; Bartonella quintana → bacillary angiomatosis, trench fever, endocarditis; Bartonella henselae → bacillary angiomatosis, cat-scratch disease, peliosis hepatis B. henselae; Bartonella clarridgeiae → Cat-scratch disease; Bartonella elizabethae → Endocarditis; Bartonella vinsonii var berkhoffii → endocarditis; Bartonella vinsonii var arupensis → fever and valvulopathy; and finally, Bartonella grahamii → uveitis. Scholars baffle by what the precise diagnosis of Bartonella species in human blood and lesions has provided. There are names of infectious organisms which associate with several diseases, but this new information has not contributed to why Bartonella can circulate in the blood without causing any reaction

for indefinite periods. Again, the reason why any given Bartonella species could course several diverse clinical manifestations of diseases. Therefore, Koch's third postulate falls short of the account of the genus Bartonella. Bartonella species do not help when used in experimental animals as they will likely produce no symptoms [14].

Koch Second Postulate

Here again, it has been unveiled those pathogens do not usually cultivate well in nutrient medium culture. This is the case with Mollicute bacteria, Erysipelothrix, Mycoplasma, and finally, Ureaplasma. We see a similar experience with viruses. None of these cultivate well in cell-free media when they are introduced to them. Ironically, organisms of these kinds that produce bacteremia in human blood germinate scarcely in cultures. These include Bartonella species and the HACEK organisms as well. The HACEK organisms are members of proteobacteria. They originate in healthy individuals that generate some cases of endocarditis, especially in children. But they do not germinate adequately well in culture. The term HACEK is from the initials of the members of the following organisms: Haemophilus, particularly Haemophilus parainfluenzae; Aggregatibacter, including Aggregatibacter actinomycetemcomitans and Aggregatibacter aphrophilus; Cardiobacterium hominis; Eikenella corrodens; and Kingella, particularly Kingella kingae [14].

Koch Third Postulate

Koch's third postulate says that "the microorganism must cause disease when introduced to a healthy experimental animal." This means that some of the worst microorganisms will not cause disease in healthy animals when introduced into them. Currently, examples of nonliving agents that will generate transmissible diseases in healthy animals are known as prions [14].

Koch says that infectious disease has a particular organism that is "the cause" or originator of the disease. Again, the modern theme is that diseases do not have "a cause," and infectious diseases are no exception to the rule that pathogenesis is a multi-step process. Myocardial infarction, for example, develops because of different conditions that occur over time. In most cases, the last result is infectious, wherein focal bacterial endocarditis precipitates a thrombus that blocks a narrowed coronary artery. Modern Scholars think it would not be wise to argue that the sequence of events that lead to a myocardial infarction can be precipitated simply by introducing an organism into an animal. There are now examples of rare infections for which several conditions must prevail before a disease appears [14].

Koch Fourth Postulate

Finally, about the fourth postulate, it is noted that many infections, considered the underlying cause of a disease, are absent from the lesions that ultimately progress. This is the case of Group A streptococcus infection, a long time believed to be the cause of rheumatic fever. Here the infection disperses before the appearance of the valvular and endocardial lesions of rheumatic fever. Another case is the species of human papillomavirus which is the underlying cause of nearly all cases of squamous carcinoma of the uterine cervix. Morphologic cytopathic effects are visible in the earliest precancers that precede the development of

invasive carcinoma. The cancers come after the years following the early papillomavirus infections and may lack a recoverable virus [14].

Koch postulates as the origin of infectious diseases may be violated by Whipple disease origin. The etiology of this disease came to be known recently. It has the characteristics of organ infiltration with foamy macrophages (i.e., specialized reticuloendothelial cells that "eat" bacteria and debris). The organ most often compromised in Whipple disease is the small intestine, where infiltration of infected macrophages in the lamina propria (i.e., a strip of loose connective tissue subjacent to the epithelial lining of the small intestine) causes malabsorption. Whipple disease is rare. It occurs most often in farmers and gardeners who work with soil. Whipple disease was first described in 1907, but its cause was unknown until 1992, when researchers isolated and amplified, from Whipple disease tissues, a 16s ribosomal RNA sequence that could only have a bacterial origin. Based on molecular features of the ribosomal RNA molecule, the researchers assigned it to Class Cellulomonadacea, and named the species Tropheryma whipplei, after the man who first described the disease, George Hoyt Whipple [14].

Particularly noteworthy, in the case of Whipple disease, is that Koch's postulates never came close to being satisfied. For the experimentalist, the most important of Koch's postulates require the extraction of the organism from a lesion (i.e., from diseased, infected tissue), the isolation and culture of the organism in the laboratory, and the consistent reproduction of the lesion in an animal injected with the organism. In the case of Whipple disease, none of these criteria were satisfied. The consistent identification in Whipple disease tissue of a particular molecule, characteristic of a species of bacteria, was deemed sufficient to establish the infectious origin of the disease [14].

Remarks

Koch's postulates, therefore, have their limitations, so they may not always be the last word. We ascertain this from the above analysis. These laws may not sustain if a particular bacterium (such as the bacteria that originates leprosy) cannot be "grown in pure culture" in the laboratory. There is no animal model of infection with that particular bacteria. Nevertheless, Koch's postulates have been critically important in establishing the criteria whereby the scientific community agrees that a microorganism causes a disease. But these criticisms flaws aside, the postulates maintain their usefulness in explaining the causes and diseases transmission in the germs' world. Let us resolve to deduce some more theorems in the above fundamental laws, which will become an extension of these essential postulates. Could this form another basis for a new theory in the medical sciences where more theorems could be deduced and studied? Let us move on to the next section of the treatise.

Main Analysis

Koch-Relsman-Fredericks Theorem

We will point out that in our previous work [5], we used the Koch postulate in our proof of the second theorem right at the beginning and assumed that disease could be transmitted. It is natural to ask whether

this use of Koch's postulates is essential. We will show that it is. By using Koch's postulates to prove the second theorem, we formally state that the second theorem also implies Koch's postulates.

We need first the fact that without assuming Koch's postulates we can show that there are arbitrarily several implications of the fundamental laws regarding diagnosis, such as Ln ≅ Ω (where [L] represents symptoms and [Ω] represents disease and the n represents a certain number 1, …, N). That is where by diagnosis there could be only one disease at a time involved, symptoms on the other hand, could be multiple conditions that signify quantity and manifold. A diagnosis that depends on many data sets appears to require initially many variables to describe, but can be comparatively several variables, likened to the local coordinate system of the underlying manifold. This information principle underpins the effectiveness of the diagnostic process in describing high-dimensional data sets by considering other significant features. This compels us to deduce the following Lemma:

Lemma 1

For each disorder (Ω), there exist one or more symptoms/conditions (L) such that Ln ≅ Ω, and, then L ε Ω, which could be written Ln ≥ Ω. This does not refer to the importance of quality but the quantity or pluralistic nature of one disease and its inherent symptoms.

Proof

Since we need to be sure that we did not use Koch's postulate to spell out the proof in more detail than would otherwise be necessary, we leave it to the inquiring reader to verify the following facts. That we can establish these facts by using the Koch postulates and other laws involved in the diagnosis.

The Comp Theorem

An alternative to Lemma 1 is the strong Comp Theorem. It is a form of the theorem, which states that if (Ω) has finitely many symptoms/conditions, then

$$\sum_{\mathcal{L}\,\varepsilon\,\Omega} \mathcal{L}(1,\ldots,N)\Lambda dc\chi.dt \;\cong\; \Omega C$$

where (L) is a set of symptoms, (Ω) is a disease, and (n) a certain number, dcχ represents the degree of complexity, dt. represents time, ᗑ immune system of the body or the body's capacity to resist or deal with the disease, and (C) represents complications. The left side have the negative sources that are known as "influencers," and the right 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 problematic 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 "incomprehensible." 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 side of the equation is incredibly high, it signifies more complexities of higher complications, but when it approaches zero, it shows complicated-free disease/disorder or the reduced complexity of the disorder.

Remarks

Coronaviruses, for example, are a family of viruses that can cause illnesses such as the common cold, severe acute respiratory syndrome (SARS), and Middle East respiratory syndrome (MERS). A new coronavirus identified in 2019 was the cause of a disease outbreak that originated in China. The virus is known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It causes the disease coronavirus (COVID-19). In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic [15-20].

When Coronavirus disease reveals numerous symptoms, the result could lead to complications. At the moment, researchers have mentioned the systems of this disease to be common signs and symptoms that can include: fever, cough, and tiredness. Early symptoms of COVID-19 may include a loss of taste or smell. Numerous other symptoms can include shortness of breath or difficulty breathing, muscle aches, chills, sore throat, runny nose, headache, chest pain, pink eye (conjunctivitis), nausea, vomiting, diarrhea, and rash. Children have similar symptoms to adults and generally have mild illnesses [21-25].

One notes that certain medical conditions may increase the risk of serious illness from COVID-19 that include: serious heart diseases, such as heart failure, coronary artery disease or cardiomyopathy, cancer, chronic obstructive pulmonary disease (COPD), Type 1 or type 2 diabetes, overweight, obesity or severe obesity, high blood pressure, smoking, chronic kidney disease, sickle cell disease or thalassemia, weakened immune system from solid organ transplants or bone marrow transplants, pregnancy, asthma, chronic lung diseases such as cystic fibrosis or pulmonary hypertension, liver disease, dementia, down syndrome, weakened immune system from bone marrow transplant, HIV or some medications, brain and nervous system conditions, such as strokes, and Substance use disorders [14]. Emergency COVID-19 signs and symptoms include trouble breathing, persistent chest pain or pressure, unable to stay awake, new confusion, and pale, gray, or blue-colored skin, lips, or nail beds, depending on skin tone [26].

The Relationship of a Set of Symptoms to Disease transmission by patient Zero (0)

A Special Formula

Let (L) be a variety of symptoms over a specific period, (n) be a certain number in a finite, (Ω) is the type of disease under consideration, (Qa0) patient 0 and the spreading subjects of disease (Ω), dt being the degree of time. The formula holds in this context and reads:

$$\sum_{\mathcal{L}\,\varepsilon\,\Omega} \mathcal{L}\,(1,\ldots,N) \;\cong\; \Omega\,(Q_{\ominus}0 \;\rightarrow\; Q_{\ominus}1 \;\rightarrow\; Q_{\ominus}\,2 \;\rightarrow \cdots\; Q_{\ominus}\,N)\,dt$$

Theorem 4: If Theorem 2 implies Koch postulates, that is T2 ⊆ K, then the following conditions do exist:

(1) There could be only one disease Ω with several conditions/symptoms Ln (1, …, N) existing.
(2) If Ln (1, …, N) ≡ Ω, symptoms (L) have multiple conditions while (Ω) remains in a single digit. (L) is in elementary equivalent relation with (Ω).
(3) If L ε Ω, there is some symptom (L) that belongs to a particular disease (Ω).
(4) If Ln (1,…, N) ≥ Ω, there are one or more symptoms (L) that inhere in a particular disease (Ω).

These naturally lead us to deduce the following important theorem.

Theorem 5. The Koch-Relsman-Fredericks Theorem

Let ∑ be a set of diseases to be diagnosed by competent practitioners in a laboratory or hospital setting. If a particular disease Ω ⊆ ∑ and its symptoms (Ln) were to be critically/clinically examined and diagnosed in multiple sessions, the symptoms (Ln [1, …, N]) would be more in quantity than the diseases (Ω). That is different symptoms, both latent and obvious, may be present for an existing disease that may signal complications or not.

Theorem 6

Therefore, Theorem 2 of the fundamental theorems in medical sciences implies Koch's postulates.

Proof. This is a restatement of Theorem 4.

Theorem 7

Let Zç be a zero-point condition where a $Q_{\ominus}$ has come for diagnosis and treatment in a hospital setting, and let $Q_{\ominus}0 < S > Q_{\ominus}$ be the relational structure of the diagnostic context. If (L) were to be the symptoms of disease (Ω) that surface as the current problem, then Ln 1, …, N ≅ Ω; and then L ε Ω which could be stated also as Ln 1, …, N ≥ Ω.

Proof. We deduce at once from Theorem 2, Theorem 3, and Lemma 1.

Theorem 8

Suppose ∑⊆ K, then ∑⊂ K (∑ is an extension of K) where ($Q_{\ominus}0 \rightarrow Q_{\ominus}1 \rightarrow Q_{\ominus}\,2 \rightarrow Q_{\ominus}\,3 \rightarrow \ldots Q_{\ominus}\,N$) are a set of a particular disorder being spread around at Zç (Zero-point condition by patient 0); if a particular disease Ω is the case in motion, then there is Ln ε Ω such that Ln 1, …, N ≥ Ω.

Proof. This is just a restatement of Koch-Relsman-Frederick's Theorem.

Theorem 9

Zero State Theorem of Medical Science

If a set of diseases (ʒ) with its variant subset (Ω), that is Ω ⊆ ʒ is spreading with symptoms Ln (1, …, N) ≅ Ω with the interval of a period "when it was not" [negative, Ɪ Ω] and, on the other hand, a period "when now there is;" [positive, Ǝ Ω] spreading in all over other regions around the globe at different cardinal points of direction. If it is adjudged to be an infectious disease, then there is at least one point in time where (ƎQΩ 0) was in the zero states (Zç) of the disease Ω, who is the transmitter of disease Ω. That is, there exists QΩ 0 in [Ɪ Ω, Ǝ Ω] such that:

Ɪ Ω ≤ QΩ 0 ≤ Ǝ Ω ∀ QΩ 0 Ɛ [Ɪ Ω, Ǝ Ω]

Where QΩ 0 represents Patient zero.

The interval -1 ≤ X ≥ 1; [-1, 1].

Proof. Here, we could use Bolzano's Theorem and the Intermediate Value Theorem of mathematical analysis to prove it. Bolzano's theorem states that "if a continuous function on an interval is sometimes **positive** and sometimes **negative**, it must be 0 at some point. In the same vein, the intermediate value theorem states that "if (f) is a continuous function whose domain contains the interval [a, b], then it takes on any given value between f (a) and f (b) at some point within the interval. [27-29].

Result

In mathematical medical science, lemma 1 is the result that a Ω will have at least one or more conditions/symptoms, Ln(1, ..., N) ≅ Ω under some conditions on L that we could state in general terms. This result is among the most generally useful in mathematical medical science. The Koch-Relsman-Frederick theorem also gives a general criterion guaranteeing that properly diagnosed symptoms can be both obvious and latent (fulfilling the presence of symptoms and asymptomatic diseases). The procedure of iterating or discovering a disorder's symptoms yields the lemma 1. The Comp Theorem reveals the stressful nature of symptoms and their dire effects on illnesses that lead to complications. Without any doubt, it is these numerous symptoms that make the contraction of Coronavirus (COVID-19) the most dangerous illness. It is also difficult to treat it. One can say the same thing about terminal diseases that characteristically display many symptoms. The Zero State theorem, which obtains its name from the spread of a disease judged an infectious disease, is a strong theorem discovered in this research in medical science. 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 commence 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. Since the theorem is a mathematical one, it allows us to use the Bolzano theorem and the Intermediate Value theorem of

mathematical analysis to prove it. The theorem will remind virologists and other researchers to concern themselves with Patient Zero (Q_e0) in an initial search for the spread of disease and its treatment in this modern world.

Discussion

We did this work to gain additional illumination on what we can describe as the fundamental laws of medical science. Simply, we have unveiled these theorems and added new supporting ones that seem very significant. There is a need to elaborate on them in the future through critical analysis and amplification. Research in the scientific fields has already revealed that those disciplines that have clearly outlined their fundamental theorems expand, and these make other equally challenging disciplines envy them. These sciences disciplines utilize these theorems to energize and further their rigorous direction in their emerging dynamic research fields. Many scholars would agree that the medical disciplines though dominant, lack their own clearly defined fundamental laws. The medical fields need its fundamental theorems to help accelerate research developments and to give them a better perspective and recognition. The goal of this treatise was to unveil and stress the new development of theorems in these areas. First, we analyzed in this treatise important well-championed laws and then discussed the origin and how we arrived at these three fundamental theorems of medicine. There was the need and an attempt to deduce more theorems and certain notions from them. The results of this treatise led to an essential lemma, which enabled us to deduce further certain theorems, such as the Koch-Relsman-Fredericks Theorem, that showed the existence of some factual statements in diagnostic medicine. Neurological science also has fundamental theorems, which indicate scientific progress, the source of rigorous and deductive science in the twenty-first century and beyond.

Concluding Remarks

We conclude by saying that the actual results of this treatise concerning these theorems generalize Koch's postulates and other significant theories of infectious diseases. This allows us to see the importance of the fundamental theorems as capable of generating more knowledge about diseases and their symptoms/conditions. These new theorems complement the fundamental theorems by satisfying rich knowledge about diseases and their transmission to other persons. There could be an extension to other relevant theories in the infectious diseases field and new technological developments regarding the novel identification and monitoring of emerging infections. Again, we could extend these theories to the knowledge of infection, immunity, and diagnostic pain treatment.

Ethics Declarations

Ethics approval and consent to participate. Regent University Ethics Committee on Research permitted. Therefore, the right to permission was acquired. Furthermore, I tried to hide the identities of the individuals involved in the research. Informed Consent and Anonymity complied.

Consent for Publication

Not applicable

Competing Interests

The author declares no competing interests.

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