

STUDY OF CLINICAL DISEASES IN REFERENCE TO MODERN ATMOSPHERE

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ABSTRACT

This research work is being made up of distinctive consortia that are working in concert to improve availability of rare disease information, treatment, clinical studies, and general awareness for both patients and the medical community. The RDCRN also aims to provide up-to-date information for patients and to assist in connecting patients with advocacy groups, expert doctors, and clinical research opportunities.

The aim of this module is to give an overview of the major infectious diseases which are seen throughout modern society. Researchers will cover a range of diseases and pathogens and discuss clinical presentation and management as well as the implications for control of the spread of infection.

INTRODUCTION

Traditionally defined as a finite abnormality of structure or function with an identifiable pathological or clinical pathological basis, and with a recognizable syndrome or constellation of clinical signs. This definition has long since been widened to embrace subclinical diseases in which there is no tangible clinical syndrome but which are identifiable by chemical, hematological, biophysical, microbiological or immunological means. The definition is used even more widely to include failure to produce at expected levels in the presence of normal levels of nutritional supply and environmental quality. It is to be expected that the detection of residues of disqualifying chemicals in foods of animal origin will also come to be included within the scope of disease. For specific diseases see under the specific name, e.g. Aujeszkys's disease, Bang's disease, foot-and-mouth disease.

A disease is an abnormal condition that affects the body of an organism. It is often construed as a medical condition associated with specific symptoms and signs. It may be caused by factors originally from an external source, such as infectious disease, or it may be caused by internal dysfunctions, such as autoimmune diseases. In humans, "disease" is often used more broadly to refer to any condition that causes pain, dysfunction, distress, social problems, or death to the person afflicted, or similar problems for those in contact with the person. In this broader sense, it sometimes includes injuries, disabilities, disorders, syndromes, infections, isolated symptoms, deviant behaviors, and atypical variations of structure and function, while in other contexts and for other purposes these may be considered distinguishable categories.

Diseases usually affect people not only physically, but also emotionally, as contracting and living with many diseases can alter one's perspective on life, and their personality.

Death due to disease is called death by natural causes. There are four main types of disease: pathogenic disease, deficiency disease, hereditary disease, and physiological disease. Diseases can also be classified as communicable and non-communicable disease.

Disease

The term disease broadly refers to any condition that impairs normal function, and is therefore associated with dysfunction of normal homeostasis. Commonly, term disease is used to refer specifically to infectious diseases, which are clinically evident diseases that result from the presence of pathogenic microbial agents, including viruses, bacteria, fungi, protozoa, multicellular organisms, and aberrant proteins known as prions. An infection that does not and will not produce clinically evident impairment of normal functioning, such as the presence of the normal bacteria and yeasts in the gut, or of a passenger virus, is not considered a disease. By contrast, an infection that is asymptomatic during its incubation period, but expected to produce symptoms later, is usually considered a disease. Non-infectious diseases are all other diseases, including most forms of cancer, heart disease, and genetic disease.

Illness

Illness and sickness are generally used as synonyms for disease. However, this term is occasionally used to refer specifically to the patient's personal experience of their disease.

In this model, it is possible for a person have a disease without being ill (to have an objectively definable, but asymptomatic, medical condition), and to be ill without being diseased (such as when a person perceives a normal experience as a medical condition, or medicalizes a non-disease situation their life). Illness is often not due to infection, but to a collection of evolved responses—sickness behavior by the body—that helps clear infection. Such aspects of illness can include lethargy, depression, anorexia, sleepiness, hyperalgesia, and inability to concentrate.

Disorder

In medicine, a disorder is a functional abnormality or disturbance. Medical disorders can be categorized into mental disorders, physical disorders, genetic disorders, emotional and behavioral disorders, and functional disorders. The term disorder is often considered more value-neutral and less stigmatizing than the terms disease or illness, and therefore is preferred terminology in some circumstances. In mental health, the term mental disorder is used as a way of acknowledging the complex interaction of biological, social, and psychological factors in psychiatric conditions. However, the term disorder is also used in many other areas of medicine, primarily to identify physical disorders that are not caused by infectious organisms, such as metabolic disorders.

Medical condition

A medical condition is a broad term that includes all diseases and disorders. While the term medical condition generally includes mental illnesses, in some contexts the term is used specifically to denote any illness, injury, or disease except for mental illnesses.

The Diagnostic and Statistical Manual of Mental Disorders (DSM), the widely used psychiatric manual that defines all mental disorders, uses the term general medical condition to refer to all diseases, illnesses, and injuries except for mental disorders.

This usage is also commonly seen in the psychiatric literature. Some health insurance policies also define a medical condition as any illness, injury, or disease except for psychiatric illnesses.

As it is more value-neutral than terms like disease, the term medical condition is sometimes preferred by people with health issues that they do not consider deleterious. On the other hand, by emphasizing the medical nature of the condition, this term is sometimes rejected, such as by proponents of the autism rights movement.

The term medical condition is also a synonym for medical state, in which case it describes an individual patient's current state from a medical standpoint. This usage appears in statements that describe a patient as being in critical condition, for example.

Morbidity

Morbidity (from Latin morbidus, meaning "sick, unhealthy") is a diseased state, disability, or poor health due to any cause. The term may be used to refer to the existence of any form of disease, or to the degree that the health condition affects the patient. Among severely ill patients, the level of morbidity is often measured by ICU scoring systems. Comorbidity is the simultaneous presence of two or more medical conditions, such as schizophrenia and substance abuse.

In epidemiology and actuarial science, the term morbidity rate can refer to either the incidence rate, or the prevalence of a disease or medical condition. This measure of sickness is contrasted with the mortality rate of a condition, which is the proportion of people dying during a given time interval.

Syndrome

A syndrome is the association of several medical signs, symptoms, and or other characteristics that often occur together. Some syndromes, such as Down syndrome, have only one cause; others, such as Parkinsonian syndrome, have multiple possible causes. In other cases, the cause of the syndrome is unknown. A familiar syndrome name often remains in use even after an underlying cause has been found, or when there are a number of different possible primary causes.

Predisease

Predisease is a type of disease creep or medicalization in which currently healthy people with risk factors for disease, but no evidence of actual disease, are told that they are sick.

Prediabetes and prehypertension are common examples. Labeling a healthy person with predisease can result in overtreatment, such as taking drugs that only help people with severe disease, or in useful preventive measures, such as motivating the person to get a healthful amount of physical exercise.

Types

- Infectious diseases
- Contagious diseases
- Foodborne illness: Foodborne illness or food poisoning is any illness resulting from the consumption of food contaminated with pathogenic bacteria, toxins, viruses, prions or parasites.
- Communicable diseases
- Non-communicable diseases
- Airborne diseases
- Lifestyle diseases: A lifestyle disease is any disease that appears to increase in frequency as countries become more industrialized and people live longer, especially if the risk factors include behavioral choices like a sedentary lifestyle or a diet high in unhealthful foods such as refined carbohydrates, Trans fats, or alcoholic beverages.
- Mental disorders: Mental illness is a broad, generic label for a category of illnesses that may include affective or emotional instability, behavioral dysregulation, and/or cognitive dysfunction or impairment. Specific illnesses known as mental illnesses include major depression, generalized anxiety disorder, schizophrenia, and attention deficit hyperactivity disorder, to name a few. Mental illness can be of biological (e.g., anatomical, chemical, or genetic) or psychological (e.g., trauma or conflict) origin. It can impair the affected person's ability to work or school and harm interpersonal relationships. The term insanity is used technically as a legal term.
- Organic disease: An organic disease is one caused by a physical or physiological change to some tissue or organ of the body. The term sometimes excludes infections. It is commonly used in contrast with mental disorders. It includes emotional and behavioral disorders if they are due to changes to the physical structures or functioning of the body, such as after a stroke or a traumatic brain injury, but not if they are due to psychosocial issues.
- Acute disease: An acute disease is a short-lived disease, like the common cold.
- Chronic disease: A chronic disease is one that lasts for a long time, usually at least six months. During that time, it may be constantly present, or it may go into remission and periodically relapse. A chronic disease may be stable (does not get any worse) or it may be progressive (gets worse over time). Some chronic diseases can be permanently cured. Most chronic diseases can be beneficially treated, even if they cannot be permanently cured.
- Flare-up: A flare-up can refer to either the recurrence of symptoms or an onset of more severe symptoms.
- Refractory disease: A refractory disease is a disease that resists treatment, especially an individual case that resists treatment more than is normal for the specific disease in question.

- Progressive disease: Progressive disease is a disease whose typical natural course is the worsening of the disease until death, serious debility, or organ failure occurs. Slowly progressive diseases are also chronic diseases; many are also degenerative diseases. The opposite of progressive disease is stable disease or static disease: a medical condition that exists, but does not get better or worse.
- Cure: A cure is the end of a medical condition or a treatment that is very likely to end it, while remission refers to the disappearance, possibly temporarily, of symptoms. Complete remission is the best possible outcome for incurable diseases.

Scope

- Localized disease: A localized disease is one that affects only one part of the body, such as athlete's foot or an eye infection.
- Disseminated disease: A disseminated disease has spread to other parts; with cancer, this is usually called metastatic disease.
- Systemic disease: A systemic disease is a disease that affects the entire body, such as influenza or high blood pressure.

Causes and transmissibility

Only some diseases such as influenza are contagious and commonly believed infectious. The micro-organisms that cause these diseases are known as pathogens and include varieties of bacteria, viruses, protozoa and fungi. Infectious diseases can be transmitted, e.g. by hand-to-mouth contact with infectious material on surfaces, by bites of insects or other carriers of the disease, and from contaminated water or food (often via faecal contamination), etc.^[14] In addition, there are sexually transmitted diseases. In some cases, micro-organisms that are not readily spread from person to person play a role, while other diseases can be prevented or ameliorated with appropriate nutrition or other lifestyle changes.

Some diseases, such as most (but not all) forms of cancer, heart disease and mental disorders, are non-infectious diseases. Many non-infectious diseases have a partly or completely genetic basis (see genetic disorder) and may thus be transmitted from one generation to another.

Social determinants of health are the social conditions in which people live that determine their health. Illnesses are generally related to social, economic, political, and environmental circumstances. Social determinants of health have been recognized by several health organizations such as the Public Health Agency of Canada and the World Health Organization to greatly influence collective and personal well-being. The World Health Organization's Social Determinants Council also recognizes Social determinants of health in poverty.

When the cause of a disease is poorly understood, societies tend to mythologize the disease or use it as a metaphor or symbol of whatever that culture considers evil. For example, until the bacterial cause of tuberculosis was discovered in 1882, experts variously ascribed the disease to heredity, a sedentary lifestyle, depressed mood, and overindulgence in sex, rich food, or alcohol—all the social ills of the time.

Burdens of disease

Disease burden is the impact of a health problem in an area measured by financial cost, mortality, morbidity, or other indicators.

There are several measures used to quantify the burden imposed by diseases on people. The years of potential life lost (YPLL) is a simple estimate of the number of years that a person's life was shortened due to a disease. For example, if a person dies at the age of 65 from a disease, and would probably have lived until age 80 without that disease, then that disease has caused a loss of 15 years of potential life. YPLL measurements do not account for how disabled a person is before dying, so the measurement treats a person who dies suddenly and a person who died at the same age after decades of illness as equivalent. In 2004, the World Health Organization calculated that 932 million years of potential life were lost to premature death.

The quality-adjusted life year (QALY) and disability-adjusted life year (DALY) metrics are similar, but take into account whether the person was healthy after diagnosis. In addition to the number of years lost due to premature death, these measurements add part of the years lost to being sick. Unlike YPLL, these measurements show the burden imposed on people who are very sick, but who live a normal lifespan. A disease that has high morbidity, but low mortality, has a high DALY and a low YPLL. In 2004, the World Health Organization calculated that 1.5 billion disability-adjusted life years were lost to disease and injury.^[16] In the developed world, heart disease and stroke cause the most loss of life, but neuropsychiatric conditions like major depressive disorder cause the most years lost to being sick.

Prevention

Many diseases and disorders can be prevented through a variety of means. These include sanitation, proper nutrition, adequate exercise, vaccinations, and other self-care and public health measures.

Treatments

Medical therapies or treatments are efforts to cure or improve a disease or other health problem. In the medical field, therapy is synonymous with the word treatment. Among psychologists, the term may refer specifically to psychotherapy or "talk therapy". Common treatments include medications, surgery, medical devices, and self-care. Treatments may be provided by an organized health care system, or informally, by the patient or family members.

A prevention or preventive therapy is a way to avoid an injury, sickness, or disease in the first place. A treatment or cure is applied after a medical problem has already started. A treatment attempts to improve or remove a problem, but treatments may not produce permanent cures, especially in chronic diseases. Cures are a subset of treatments that reverse diseases completely or end medical problems permanently. Many diseases that cannot be completely cured are still treatable. Pain management (also called pain medicine) is that branch of medicine employing an interdisciplinary approach to the relief of pain and improvement in the quality of life of those living with pain.

Treatment for medical emergencies must be provided promptly, often through an emergency department or, in less critical situations, through an urgent care facility.

Epidemiology

Epidemiology is the study of the factors that cause or encourage diseases. Some diseases are more common in certain geographic areas, among people with certain genetic or socioeconomic characteristics, or at different times of the year.

Epidemiology is considered a cornerstone methodology of public health research, and is highly regarded in evidence-based medicine for identifying risk factors for disease. In the study of communicable and non-communicable diseases, the work of epidemiologists ranges from outbreak investigation to study design, data collection and analysis including the development of statistical models to test hypotheses and the documentation of results for submission to peer-reviewed journals. Epidemiologists also study the interaction of diseases in a population, a condition known as a syndemic. Epidemiologists rely on a number of other scientific disciplines such as biology (to better understand disease processes), biostatistics (the current raw information available), Geographic Information Science (to store data and map disease patterns) and social science disciplines (to better understand proximate and distal risk factors). Epidemiology can help identify causes as well as guide prevention efforts.

In studying diseases, epidemiology faces the challenge of defining them. Especially for poorly understood diseases, different groups might use significantly different definitions. Without an agreed-on definition, different researchers may report different numbers of cases and characteristics of the disease.

LANGUAGE OF DISEASE

An illness narrative is a way of organizing a medical experience into a coherent story that illustrates the sick individual's personal experience.

People use metaphors to make sense of their experiences with disease. The metaphors move disease from an objective thing that exists to an affective experience. The most popular metaphors draw on military concepts: Disease is an enemy that must be feared, fought, battled, and routed. The patient or the healthcare provider is a warrior, rather than a passive victim or bystander. The agents of communicable diseases are invaders; non-communicable diseases constitute internal insurrection or civil war. Because the threat is urgent, perhaps a matter of life and death, unthinkable radical, even oppressive, measures are society's and the patient's moral duty as they courageously mobilize to struggle against destruction. The War on Cancer is an example of this metaphorical use of language.

Another class of metaphors describes the experience of illness as a journey: The person travels to or from a place of disease, and changes himself, discovers new information, or increases his experience along the way. He may travel "on the road to recovery" or make changes to "get on the right track". Some are explicitly immigration-themed: the patient has been exiled from the home territory of health to the land of the ill, changing identity and relationships in the process.

Some metaphors are disease-specific. Slavery is a common metaphor for addictions: The alcoholic is enslaved by drink, and the smoker is captive to nicotine. Some cancer patients treat the loss of their hair from chemotherapy as a metonymy or metaphor for all the losses caused by the disease.

Some diseases are used as metaphors for social ills: "Cancer" is a common description for anything that is endemic and destructive in society, such as poverty, injustice, or racism. AIDS was seen as a divine judgment for moral decadence, and only by purging itself from the "pollution" of the "invader" could society become healthy again. Authors in the 19th century commonly used tuberculosis as a symbol and a metaphor for transcendence. Victims of the disease were portrayed in literature as having risen above daily life to become ephemeral objects of spiritual or artistic achievement. In the 20th century, after its cause was better understood, the same disease became the emblem of poverty, squalor, and other social problems.

THEORY ON HIV

Human immunodeficiency virus infection / acquired immunodeficiency syndrome (HIV/AIDS) is a disease of the human immune system caused by infection with human immunodeficiency virus (HIV). During the initial infection, a person may experience a brief period of influenza-like illness. This is typically followed by a prolonged period without symptoms. As the illness progresses, it interferes more and more with the immune system, making the person much more likely to get infections, including opportunistic infections and tumors that do not usually affect people who have working immune systems.

HIV is transmitted primarily via unprotected sexual intercourse (including anal and even oral sex), contaminated blood transfusions, hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding. Some bodily fluids, such as saliva and tears, do not transmit HIV. Prevention of HIV infection, primarily through safe sex and needle-exchange programs, is a key strategy to control the spread of the disease. There is no cure or vaccine; however, antiretroviral treatment can slow the course of the disease and may lead to a near-normal life expectancy. While antiretroviral treatment reduces the risk of death and complications from the disease, these medications are expensive and may be associated with side effects.

Genetic research indicates that HIV originated in west-central Africa during the early twentieth century. AIDS was first recognized by the Centers for Disease Control and Prevention (CDC) in 1981 and its cause—HIV infection—was identified in the early part of the decade. Since its discovery, AIDS has caused nearly 30 million deaths (as of 2009). As of 2010, approximately 34 million people are living with HIV globally. AIDS is considered a pandemic—a disease outbreak which is present over a large area and is actively spreading.

HIV/AIDS has had a great impact on society, both as an illness and as a source of discrimination. The disease also has significant economic impacts. There are many misconceptions about HIV/AIDS such as the belief that it can be transmitted by casual non-sexual contact. The disease has also become subject to many controversies involving religion.

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