

Epidemiology of Life-Threatening Disease and Inflammation

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ABSTRACT

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Opinion

Various life-threatening diseases were studied in this analysis of epidemiology [1]. Diabetes, allergy and associated diseases, arthritis, metabolic diseases, kidney disease and infection, inflammatory bowel disease and infection are covered here for epidemiology study and analysis. Diabetes, roughly 463 million people living with diabetes worldwide [2] and diabetes caused 4.2 million deaths [3]. According to the predictions, over 700 million people will be affected by diabetes by 2045 worldwide [3]. According to the survey of the National Diabetes Statistics Report, US, in 2018, more than 26.9 million people are suffering from it, and about 8.2% of the US population facing complications because of it [4]. Diabetes is not infectious and is underlined as a chronic inflammatory disease having several complications. The understanding of the emerging role of inflammation in its pathophysiology and allied metabolic disorders will be helpful. It was suggested that by controlling or treating inflammation, the prevention and control of diabetes can be possible. Several scientific observations explore the link between high levels of inflammation and the progression of type 2 diabetes. Elucidation of inflammatory pathways is a good strategy for developing medical remedies for the prevention and controlling of diabetes and associated complications.

The severity of coronavirus disease 2019 (COVID-19) infection is higher in those patients who are already suffering from diabetes mellitus and it is one more complication of it. Arthritis, a large number of the population affected by rheumatoid arthritis and it is approximately 350 million in the world and 120 million people in European [5]. In the US, nearly 54.4 million people out of 22.7 % of the population being affected in 2015 by it [6]. According to an

estimation, a large number of patients are affected by rheumatoid arthritis and it will exceed up to 130 million individuals by 2050 [7]. Arthritis has a close association with inflammation. At some times, the immune system triggers an inflammatory response, no reaction from the body, then these physiological complications are notified as autoimmune diseases. Arthritis, which is initiated by inflammation, affects joints, was further classified into different category i.e., rheumatoid arthritis, psoriatic arthritis, gouty arthritis, and systemic lupus erythematosus. Allergy and associated diseases: The occurrence of allergic diseases is frequently growing worldwide. The understanding of the multifactorial etiology of these diseases is interesting. Several allergic illnesses including asthma, allergic conjunctivitis, atopic dermatitis, and allergic rhinitis share similar risk factors. Around 300 million patients have been suffered from asthma worldwide and will be around 100 million by 2025 [8]. In the United States affecting more than 50 million people are affected by allergy-induced diseases every year [9]. In Asia, this disease affects 27% overall population in South Korea and near about 32% in the United Arab Emirates [10]. One of the diseases initiated due to allergy, (asthma) affects more than 24 million people in the United States, including more than 6 million children. Moreover, allergic diseases, such as anaphylaxis, asthma, hay fever, and eczema now afflict roughly 25% of people in the developed world [11]. Therefore, clinicians are trying their best to expose the epidemiological routes of atopic disease and associated factors to design new strategies for effective treatment and prevention for putting into practice.

In allergic diseases, insistent or repetitive exposure to allergens present in the environment, consequences in chronic allergic

inflammation. Thus, understanding of the concerned features and consequences of acute and chronic allergic inflammation, and especially, when mast cells initiate several characteristics of various routes and paths of immunological reactivity. It was evident that the influences of environmental exposures, numerous environmental variations, alternations in the features of microbial, and environmental exposure to numerous pollutants. Metabolic diseases, about 54 metabolic disorders considered for clinical and public health significance, such as osteopenia, mild-moderate hypovitaminosis D, impaired glucose tolerance, obesity, metabolic syndrome, erectile dysfunction, diabetes mellitus, impaired fasting glucose, osteoporosis, dyslipidaemia and thyroiditis [12]. According to the physiology of a few diseases were observed in the minimum possible, including pituitary adenomas, adrenocortical carcinoma, and pheochromocytoma. The possibilities of detection of disorders such as hyperparathyroidism and thyroid were in a higher range and the prospects of their incidences are more frequent in female patients.

Many metabolic diseases originate from the abnormal features and functioning of the pituitary, adrenal, and gonadal. Several metabolic disorders such as obesity, atherosclerosis, and type 2 diabetes underlined as lipid storage disorders and have a concern with nutrition. The role of chronic inflammation in the initiation, propagation, and expansion of metabolic disorders are deeply examined and outputs confirmed its title role in their beginning. Recently, transcription factor NF- κ B was specified as one of the key reasons for the progression of these diseases, and this evidence confirmed the involvement of inflammation in the etiology of metabolic disorders. Inflammatory bowel disease and infection, according to an estimate of the U.S. Centers for Disease Control and Prevention, more than 3 million people in the United States are affected by inflammatory bowel disease (IBD) [13]. Moreover, Crohn's and the Colitis Foundation of America assessed the situation and reported that nearly 1.6 million patients in the United States have IBD. Ulcerative colitis (UC) and Crohn's disease identified as inflammatory bowel disease. Further, Crohn's disease has four types of it, including Ileocolitis or Ileocecal Crohn's disease, Ileitis, Gastroduodenal Crohn's disease, Jejunoileitis, and Crohn's (granulomatous) colitis. IBD is an immune-mediated disease, which persisted in the gastrointestinal tract. According to the evidence of epidemiological research, obesity and obesity-associated metabolic syndrome triggered IBD. The predicted treatment methodology can be applied for treating chronic inflammatory bowel diseases by supporting immunosuppression, but in some cases, infectious complications make it worse. Numerous clinical observations have identified the role of infection in the initiation and progression of inflammatory bowel disease, and after that, the clinical suggestions were illustrated for inhibiting bacterial intestinal load. IBD is a type of chronic intestinal inflammation and is identified as a group of autoimmune diseases and host-microbial interactions are its key initiators.

The persistent inflammation easily induced Crohn's disease and ulcerative colitis. The patient who suffered from IBD experienced

abdominal symptoms, including diarrhea, vomiting, abdominal pain, and bloody stools. Kidney disease and infection, chronic kidney diseases are leading health problems worldwide and are detected commonly. According to the data analysis of the global level, CKD has an estimated prevalence is 13.4% (11.7-15.1%), In the US, about 15% of adults, or nearly 37 million people, have chronic kidney disease. Insistent, inflammation is underlined as an important factor, which initiates CKD that plays a unique role in its pathophysiology. Inflammation of the kidney is also known as nephritis. In Greek terminology, nephron defined as "of the kidney" and it represents "inflammation." Various causes are underlined that initiate nephritis include autoimmune disorders, infections, and toxins in the body. Various factors i.e., pro-inflammatory cytokines, oxidative stress, AGEs, homocysteine, and acidosis, and their excess physical and chemical concentration and their decreased clearance directly influence the chronic inflammatory status, which further triggered the initiation of chronic kidney disease.

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Availability of Data and Materials

Wherever necessary, relevant citations are included in the reference section.

Competing Interests

The author has declared that no competing interest exists.

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