ECOSOCIAL EPIDEMIOLOGY: MODERN TRENDS IN PREVENTIVE MEDICINE

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Throughout its existence, man directed efforts towards natural and social environmental change for the benefit of improving his life. In these circumstances, the issue of human and human-environment relationships has become increasingly complex, full of benefits but also of nonsanogenetic factors.

Each of the structural factors of the environment, natural and social, interact with each other within the human ecosystem. In this system, man is subjected to the action of various factors and at the same time he influences them so that the human ecosystem is in constant transformations.

The dynamic ecosystem changes and transformations determine the nature of the effects on the structures and functions of the human body.

Knowledge of these ecosystem-derived effects and their sanogenetic or nonsanogenetic peculiarities is the major objective of Healthy People Medicine (HPM) based on the integrative concept of eco-socio-epidemiology.

As humans became more numerous and advanced, the self-regulating mechanisms in the ecosystem began to record important failures, endangering human health and life. This lead to dangerous imbalances in the relationships between humans and their working and living environment and ecosystem structures.

The technical and scientific revolution, as well as civilization, is at first sight responsible for the human health hazards through biological, chemical and physical pollution. In reality, man is the true culprit, as in his relations with the ecosystem structures he ignored the rules governing the interrelations between them, their dynamic but very sensitive equilibrium.

The development of the concept and concerns of preventive medicine and later of HPM required population-based approaches to health and disease problems. Thus, an integrative approach to ecology, epidemiology and sociology became necessary.

HPM promotion cannot be conceived without resorting to ecological, socio-
logical and epidemiological methods and methodologies because health protection requires the detection and neutralization of aggression factors both from the natural and social environment. So HPM includes concerns of medical ecology, sociology and epidemiology. Thus HPM benefits from the contribution of a new discipline, eco-socio-epidemiology, born of interdisciplinarity.

The integrative approach of the three components of global human ecosystem (nature, society and people) is only possible by the associative use of the ecological, sociological and epidemio-logical methods and methodologies. To this is added, as a logical necessity, the cooperation of many other medical and non-medical scientific disciplines.

The activities promoted by Ecosocial epidemiology can ensure harmonious and balanced human relations with the ecosystem, with favorable consequences for population health promotion.

The epidemiological processes of diseases affecting human populations occur, develop and present features expressing the nature of human-natural environment and human-social environment relationships.

The epidemiological process consists of factors derived from the natural, social and biological components of the human ecosystem, each representing a distinct category, with a particular role in producing morbidity manifestations in population.

Ecosocial epidemiology determines which habitat types are health promoting so that in perspective to ensure human survival. It also highlights the risks at the level of habitats, sub-ecosystems and global human ecosystem through pollution, degradation of the quality of air, water, soil, food and lifestyle, including many non sanogenetic components (nutritional, sedentarism, smoking, alcoholism, drug addiction).

Ecosocial epidemiologic research showed that the changes in the human ecosystem due to technical and scientific revolution are reflected in the emergence of new and diverse sources of aggressive agents for health, ways and means of their spreading into the population and various behaviors of the human body.

In these circumstances, epidemiological processes, especially in non-communicable diseases, have become complex, heavily dependent on natural and social conditions and on changing human biology.

Ecosocial epidemiology plays a fundamental role in HPM as it identifies and capitalizes the factors that can contribute to health promotion, while detecting and neutralizing the non sanogenetic factors derived from the human ecosystem structures.

The complex analysis of the phenomena in the social and natural environment that condition health requires studies on the interconnections between health status and the assembly of human relations with the ecosystem, based on an integrative concept offered by ecology, sociology and epidemiology.

Population health status

Ecosocial epidemiology allows us to know all man-man, man-nature, man-society phenomena and connections, focusing on a global view on population health status as a vital whole integrated in a given society, in particular temporal and spatial conditions.

Integration of phenomena which influence the population health status among the social and natural phenomena is essential for successful disease prevention and control actions and promotion of mental and physical health.
Often, in disease prevention and control the socio-economic factors are decisive, and solving the health problems must overcome economic interests related to correction or even change of some technologies or location of economic units generating risk factors for health. In such situations, social epidemiology brings scientific arguments to support the development of prevention measures. Thus, epidemiology detects and evaluates the risk of some environmental factors, highlighting their effects on populations. It also elucidates the interrelationships between the adaptive capacity of human body and the intervention of some social and natural environmental factors.

As part of its main concerns, epidemiology seeks to discover and explain the incidence of diseases in different human ecosystems. To this end, it provides knowledge of the characteristics of factors that constitute the epidemiological process: factors-host (human-individual variables); factors-agent (disease-bearing variable), factors-natural and social environment (where host factor and agent interact).

The study of the structure and evolution of epidemiological processes by social epidemiology demonstrated the role of social factors. These factors can cause or favor a predisposition to disease, can directly cause a disease state, can transmit the disease causes and can influence the natural progression of disease.

Epidemiological research on the different structures of the human ecosystem reveal or suggest an etiological hypothesis, identify and rank the factors that may cause the emergence and evolution of disease at population level.

**CONCLUSIONS**

By the large arsenal of methods adequate for population-based studies epidemiology together with ecology and sociology can detect the significant correlations between health or disease status and the factors generated by intrapopulational relationships and between these and the human relationships with the natural and social environment.

In these circumstances, the contribution of *Ecosocial epidemiology* to the development and implementation of health promotion and disease prevention and control programs becomes essential.

These programs provide evidence of the epidemiological, ecological and sociological causal determinism of the health or disease status.

The complex mechanisms of action of biological, physico-chemical, technological, nutritional, educational, psycho-emotional and other factors acting on a determined genetic background are evaluated.

Epidemiology, promoting ecological and sociological concepts in the evaluation of health and disease phenomenon, demonstrates that disease prevention cannot be achieved solely by medical effort, but as a complex process with wide temporal and spatial extension, which should protect individuals from the prenatal period until the end of life.

**REFERENCES**

ADVANCED AGE AND INCIDENCE OF ATRIAL FIBRILLATION IN THE POSTOPERATIVE PERIOD OF AORTIC VALVE REPLACEMENT

Postoperative atrial fibrillation (AF) is the most common complication after cardiac surgery and is associated with higher risks of cerebrovascular accident (CVA), hospital expenses and mortality as well as longer hospital and Intensive Care Unit (ICU) stay. In most cases, it spontaneously reverts to sinus rhythm, without the need for pharmacological intervention. Postoperative AF occurs in approximately 30% to 40% of patients who undergo coronary artery bypass grafting (CABG) and in up to about 60% of patients who undergo concomitant valve surgery. The incidence of this arrhythmia depends on the definitions adopted, the characteristics of the patients, the type of surgery performed, and the monitoring method. AF incidence has been increasing for the past few decades thanks to the higher percentage of elderly patients undergoing cardiac surgery. This arrhythmia occurs typically on the second or third postoperative day, with 70% of the events occurring by the fourth day. However, it can happen at any time after surgery, including after hospital discharge. In fact, AF is the leading cause of early hospital readmission after cardiac surgery. Indications for aortic valve surgery have been increasing due to an increase in population longevity. Even though AF is expected to be more frequent, there are few data on the prevalence of this condition in individuals aged 80 years or older and on its correlation to morbidity and mortality to offer guidance on the possible need for more aggressive prophylaxis during the preoperative period of more elderly patients. In this study was analyzed a sample of elderly patients and described the correlation between age and occurrence of acute postoperative AF after aortic valve stenosis surgery. Secondly, it set out to assess the influence of AF in the incidence of postoperative CVA, hospital length of stay, and hospital mortality (Fernando Pivatto Júnior1, MD; Guaracy Fernandes Teixeira Filho1, MD; João Ricardo Michelin et al. Advanced age and incidence of atrial fibrillation in the postoperative period of aortic valve replacement. Rev Bras Cir Cardiovasc 2014; 29(1): 45-50).