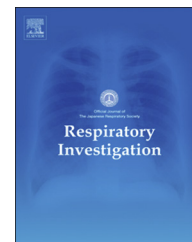




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Respiratory Investigation

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Review

Importance of clinical epidemiology research in studies on respiratory diseases



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ARTICLE INFO

Article history:

Received 26 January 2013

Received in revised form

28 March 2013

Accepted 1 April 2013

Available online 13 June 2013

Keywords:

Clinical epidemiology

Asthma

Clinical research

Investigator-initiated study

Evidence-based medicine

ABSTRACT

Evidence-based medicine (EBM) has generated great interest since the 1990s and many physicians worldwide have based their clinical practice on this idea. Its underlying concepts include a diverse array of findings from clinical epidemiological research.

In western countries, many clinical databases of clinical epidemiology are in circulation. Clinical epidemiological research using these data in western countries constitutes the majority worldwide. However, because race, lifestyle, culture, etc., differ among western countries and Japan, it is difficult to apply the results of clinical epidemiological research obtained in Japan to western countries. Unfortunately, there is no large-scale database for respiratory diseases prevalent in Japan. Many specialists agree with the opinion that it is necessary to collect medical information specific to the Japanese population and analyze the clinical data.

KiHAC (Kinki Hokuriku Airway Disease Conference) was established in September 2001 with the aim of generating evidence through clinical epidemiological research for airway diseases by targeting physicians practicing respiratory medicine, pediatrics, and otorhinolaryngology, primarily in the Kinki and Hokuriku regions located in the central to western parts of Japan. As a part of the KiHAC, clinical research societies will attempt to cooperate with each other to make joint research possible and to share and utilize information, in addition to further promoting clinical research in the field of respiratory medicine.

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1. Introduction

Since Guyatt suggested the term “evidence-based medicine,” EBM has generated great interest [1]. Physicians across the world practice based on this idea. Its underlying concepts include the findings obtained from clinical epidemiological research.

Clinical epidemiological research targets a group, statistically analyzes data obtained, discovers the cause of disease, improves preventive methods, aids diagnoses, and offers treatment options, all of which enhance the quality of life (QOL) of patients. Holland suggests that epidemiological research works on the following three principles: (1) study the causes of diseases and functional abnormalities, (2) study the prevention and treatment of diseases, and (3) study the management, operation, and planning for individual patients and regions [2]. Conducting clinical epidemiological research and analyzing the data obtained from the group aids in problem resolution for the individual patients.

Generally, in clinical epidemiological research, it is important to involve physicians actually engaged in medical practice. In Japan, most of the clinical research initiated by physicians has been conducted under the theme of clinical questions and problems. However, considering the high-cost of clinical testing (clinical trials) for developing and obtaining approval for medical products and medical equipment, it is not easy to conduct good quality and large-scale research because of various considerations associated with time and funding.

1.1. Clinical epidemiology research in western countries and Japan

In Japan, there is a view point that medical care is applicable for healing patients who personally visit the doctors; therefore, medical policies have been substantially based on the intuition and clinical experience of the physician. Conversely, in western countries, in 1938, Paul coined the term “clinical epidemiology” as a “new science of preventive medicine in which the exploration of relevant aspects of human ecology and public health began with the study of individual patients” [3]. He suggested a method of solving the problems of individual patient's based on the information obtained from a group.

Since the mid 1990's, the concept of clinical epidemiology has spread with the aim of applying epidemiology to solve clinical problems, such as evaluation of the quality of medical techniques and medical information. With social requests and recent advances in the Internet-based services and electronic databases of medical references, medical care based on scientific, reasonable evidence is required. This has led, to the development of EBM. EBM, a methodology for applying clinical epidemiology to individual cases, was defined by Sackett in 1996 as “the

conscientious and judicious use of current best evidence in making decisions about the care of individual patients” [4]. In order to implement EBM, it is important to have knowledge of the clinical field and related epidemiological research.

In western countries, there are many primary clinical databases of clinical epidemiology, one of which is the General Practice Research Database of the UK Department of Health [5]. It is large-scale, with medical data from more than 3 million people in England. However, since race, lifestyle, cultures, and other demographic factors differ among western countries and Japan, it becomes difficult to apply the results of clinical epidemiological research to western countries and Japanese population as they are. For example, drug dosage must be considered in reference to the differences in the genetic defects of drug-metabolizing enzymes, gene polymorphism to drug susceptibility, differences in physical constitutions, and differences in medical conditions [6,7]. Hisayama Study is a well-known original Japanese clinical database; however, the target diseases included primarily are stroke, hyperpiesia, diabetes, dementia, and other non-respiratory diseases [8]. Unfortunately, there is no large-scale database pertaining to respiratory diseases in Japan.

In Japan, most clinical research presented at academic conferences each year involves investigator-initiated studies planned and implemented by the physicians themselves. However, very few of these studies are actually published. When comparing the number of Japanese academic papers published in the international medical journals, basic research is ranked fourth in the world, while clinical research has been relegated to the 25th position [9]. Some of the reasons for this finding include that the importance of clinical research (clinical epidemiological research) was not understood well, the implementation system was not sufficiently organized, and human resource development was not conducted through a systematic educational program [10]. The present situation in Japan is such that objective evidence is accepted as collected in western countries, while medical practices are unconditionally performed in Japan because clinical epidemiological research has thus far been lagging behind and there are very few nationwide, continual investigations involving actual medical situations. The perception is that many specialists agree with the opinion that it is necessary to collect medical information specific to the Japanese population and analyze the clinical data.

2. Clinical epidemiological research for the respiratory diseases in Japan

In the field of respiratory medicine, in particular, in asthma and chronic obstructive pulmonary disease (COPD), as a

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