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Opinion Article

Prevalence and Outcomes Related to Efficacy of Drugs and a Real World Evaluation of Pharmacoepidemiology

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DESCRIPTION

Pharmacoepidemiology is a study of drug use and efficacy in a large number of people. It provides estimates of the potential for positive effects and potential side effects of the drug in the population. This can be described as a bridge science that includes both clinical pharmacology and epidemiology. An epidemiological study mainly consists of two types.

Descriptive epidemiology

Describes the outbreak in terms of people, place, and time. "People" refers to the socio-demographic characteristics of a case and includes variables such as age, race, gender/gender, occupation, and socioeconomic status. "Location" refers to a spatial relationship that is important in describing the outbreak of a disease and may include variables that describe clustering, rural and urban conditions, cities, states/territories, or countries.

Analytical epidemiology

Deals with the investigation of causes and consequences, or the reasons and methods. Epidemiologists use analytical epidemiology to quantify the relationship between exposure and outcome and test causal hypotheses. Epidemiology alone is said to be unable to prove that a particular exposure caused a particular result. However, epidemiology often provides sufficient information for proper management and precautionary measures.

In the United States, the FDA must approve a drug before it can be sold to the public. The public has an FDA drug rating to facilitate the availability of safe and effective medicines, keep unsafe or ineffective medicines out of the market, and provide drug information for the proper use of medicines. It depends on the Research Center (CDER). There is great pressure from the pharmaceutical industry and the general public to approve and use medicines. On the other hand, the FDA is under great pressure to protect the safety of its people.

Pharmacoepidemiology is best described as a study of drug use under real-world conditions in large populations to assess the efficacy and risks associated with the use of healthcare products. Pharmacoepidemiology enables characterization of conditions of use, misuse, clinical efficacy, side effects, and drug risk. Advances in pharmacological epidemiology have enabled better optimization of substance use. It is well-established and robust study design that provides strong evidence of the drug's relationship to results. Pharmacoepidemiology results can be used in combination with other data to explain or identify areas of need and improve health outcomes.

The World Health Organization (WHO) defines the use of medicines as “focusing on the marketing, distribution, prescribing, and use of medicines in society, especially the consequent medical, social, and economic impacts”. These studies define the actual conditions of use of post-marketing medicinal products. They examine the quantitative and qualitative characteristics of the treated patient, prescriber, or prescribed amount. It also takes into account national or regional differences in drug use, prescribing determinants, and validated indications. However, in recent years, recognizing the importance of a large population-based longitudinal cohort, large nationally managed databases or registries, big data, are increasingly being used in the field of pharmacological epidemiology. Data from electronic records, registries, medical bills, pharmacy data, and wearable and mobile healthcare technologies also provide the basis for the process of assessing performance and providing feedback to improve the quality and results of healthcare at the population level (Klonoff). An integrated system of health care in many countries makes it easy to link inpatients, outpatients including Emergency Departments (ED), hospitals, outpatient care, drugs, immunity, and test data.

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