Review Article

Epidemiology Concepts for Clinical Trials

Praneeth Kamarapu*

Department of Clinical Research, Texila American University, Guyana, South America

*__*Corresponding author:__ Praneeth Kamarapu, Department of clinical research, Texila American University, Guyana, South America, Tel: 9247622152; E-mail: Praneeth_chakravarthi@rediff.com

Abstract

This article will encompass the discussion around the ideas of affiliation and results for present standard epidemiological ideas of rate and commonness characterize and portray the observational methods. In this paper we have shown that there are many possible sources of Error that can result in systematic distortions of study results.

Keywords: Epidemiology; Cross-sectional; Case-control studies; Lung cancer

Introduction

The study of epidemiology refers to the investigation of illness, diseases and causative reasons in populations, epidemiology serves as the gold standard of population health assessment. Epidemiological studies varies from routine medical procedures although remains the major impactful assessment for a probable or particular disease in a reasonably large population. Powerful epidemic predictions may provide preparatory time for the whole medical community. Accomplice, cross sectional, and case-control studies are altogether indicated as observational studies. Regularly these studies are the main practical technique for considering different issues, Cohort studies are utilized to study rate, reasons, and anticipation. Cross-sectional studies are used to determine prevalence. They are quite quick and convenient but do not permit difference between cause and effect. Case-control studies compare organizations retrospectively. They seek to identify possible predictors of outcome and are useful for studying rare diseases or outcomes. The crucial point of a clinical trial is the aim of investigating the difference of the patient groups caused only by the treatment procedures that are applied [1-10].

In modern times, classical epidemiological methods gradually evolved and rendered support from the case-control study to demonstrate an association between the cause and the effect of the diseases in a quantitative manner, such as, smoking and lung cancer, use of the prospective cohort study to determine risk factors for cardiovascular disease in the Framingham Heart Study, and use of the randomized clinical trial for the poliomyelitis vaccine 1. The evidence-based medicine and patient-derived outcomes assessment movements burst onto the scene of clinical medicine in the 1980s and 1990s as a result of contemporaneous medical, societal, and economic influences [11-24].

Cohort Studies

Cohort report describes incidence or common historical past. They analyse predictors (hazard causes) thereby enabling calculation of relative risk. Cohort reports measure interests in temporal sequence thereby distinguishing factors from effects. Confounding variables are the predominant concern in analysing cohort studies [25-33].

Advantages and disadvantages of cohort studies

Using cohorts is by and large obligatory as a randomised managed trial could also be unethical. The other advantage is that a single study can examine quite a lot of effects of the considered variables. These strategies actually remain in contrast with case-control reports as they determine only one effective variable. Cohorts allow calculation of the effect of every variable on the likelihood of setting up the final result of interest. However, where a distinctive outcome is infrequent, in such cases, a prospective cohort learning is inefficient. Yet another obstacle with potential cohort experiences is the lack of subjects to follow up the study. This vastly affects the final result of the study along with lower level of confidence limit [34-38].

Nevertheless, it's not likely that bronchial asthma in itself confers any protection against lung cancer. It is probable that the incidence of lung melanoma is shrinking in people with bronchial asthma when we consider that fewer asthmatics smoke cigarettes (confounding variable). The one option to eliminate all likelihood of a confounding variable is through a prospective randomised managed trial to be trained.

Cross-Sectional Studies

Cross sectional studies are the best way to determine prevalence and are relatively quick. Moreover, this type of studies is able to produce multiple outcomes. This study type does not themselves differentiate between cause and effect or the sequence of events [39-44].

Advantages and disadvantages

The essential advantage of cross sectional studies is that it is very economical to conduct and follows a fast process. In this type of study there is no monitoring, only smaller amount of resource required. Cross sectional studies are only solution to find out prevalence and are also helpful in the case of identifying associations which may be rigorously studied by a cohort study. "The major problem in gaining knowledge with this type of study is to differentiate the cause and the observed result from simple association". Although, Moreover, male homosexuality is associated with each but motives neither. This is another instance of a confounding variable and its relevance. As a rule, there are quantities of believable explanations. Rare conditions cannot effectively be studied making use of pass sectional reviews when we

consider that even in giant samples there could also be nobody with the ailment. In this problem it is higher to be taught a go sectional sample of sufferers who already have the disease (a case series). On this way it was discovered in 1983 that of a thousand patients with AIDS, 727 had been gay or bisexual guys and 236 had been intravenous drug abusers. the conclusion that participants in these two groups had a bigger relative risk was once inescapable. The natural history of HIV infection was once then studied utilizing cohort stories and efficacy of therapies by way of case-controlled stories and randomized clinical trials [45-51].

Case-Control Studies

Compared to the cohort and cross-sectional studies, case-control studies are usually retrospective. Case-control studies are simple to organize, retrospectively compare two groups to find out the predictors of an outcome. Permit assessment of the influence of predictors on outcome via calculation of an odds ratio [52-55].

Advantages and disadvantages of case-control studies

When conditions are uncommon, case-control studies generate a lot of information from relatively few subjects. When there is a long latent period between an exposure and the disease, case-control studies are the only feasible option. With less than 300 demonstrated case a cross sectional be taught would need about 200 000 objects to include one symptomatic patient. Given a postulated latency of 10 to 30 years a cohort be taught would require each a significant sample size and take iteration to entire. In case-control reports comparatively few topics are required so more assets are on hand for finding out each and every. As a result an enormous quantity of variables can also be regarded. This form of learn is for this reason priceless for producing hypotheses that may then be proven utilizing other types of study. This flexibility of the variables studied comes at the cost of the restrained outcomes. The one final result is the presence or absence of the sickness or whatever criteria have been chosen to select the instances. The most important issues with case-control reports are the familiar ones of confounding variables and bias [56-60].

Discussion and Conclusion

Our discussion and examples above have shown that there are many possible sources of error that can result in systematic distortions of study results. These distortions are a problem, especially when the epidemiologist is estimating the association between a risk factor and a health problem. Whether a risk factor or a protective factor goes undetected, or a normal behavior or condition is misidentified as a risk or protective factor, the implications may bring serious consequences for the public. An erroneously identified risk element may cause unnecessary fear among the public or possibly a needless diversion of the limited study funds. Epidemiologists conducting observational studies (cohort, go-sectional and in particular case–manipulate need to be conscious of the expertise for biases and exert additional care to do away with or slash their outcome. As an interpreter of reports we, the general public, have to be mindful of the viable biases in such reviews after we overview their conclusions as suggested by the mass media.

References

1. Barry FR, Patat AM (2015) A Descriptive Study of Liquid Laundry Pods Exposures Compared to Traditional Liquid Laundry Exposures, from 2005 To 2012. J Clin Toxicol 5: 236.

2. Al-Awaidy ST, Al-Obeidani I (2009) Epidemiology of Pandemic H1N1 in Oman and Public Health Response. J Community Med Health Educ 5: 343.

3. Yazbek S, Kreidieh K (2015) Hepatitis E Virus in the Countries of the Middle East and North Africa Region:An Awareness of an Infectious Threat to Blood Safety. Clin Microbiol 4: 191.

4. Xu W, Yu B (2015) Chemotherapy for Primary Adenocarcinoma of the Urinary Bladder: Case Report. Adv Pharmacoepidemiol Drug Saf 4: 180.

5. Song HY, Zhang YM (2015) Developmental Expression of Calcium Activated Chloride Ion Channels Anoctamin 5 in Mouse Skeletal Muscle. Adv Pharmacoepidemiol Drug Saf 4: 179.

6. Magon P (2015) Drug-Induced Pulmonary Edema and Acute Respiratory Distress Syndrome in Children. Adv Pharmacoepidemiol Drug Saf 4:178.

7. Kothari DJ (2015) Retrospective Review of Weight Gain with Atypical Antipsychotics at GMH and COCMHC. Adv Pharmacoepidemiol Drug Saf 4: 177.

8. Raja AD, Vignesh R (2016) Stress Distribution Analysis in Children Fractures by Nail Fixation Methods. Int J Innov   Res Sci Eng Tech.

9. Saravanan M, kumar GR (2015) Analysis and Stress Variation in Children Fractures by Nail Fixation Methods and Associated Bone Health Characteristics. IJIRSET.

10. Dal-Negro RW, Guerriero M (2015) COPD and Public Opinion:Results of a Survey in the General Population. J Pulm Respir Med 5: 255.

11. Silva CS, Mullis LB (2014) Human Respiratory Coronaviruses Detected In Patients with Influenza- Like Illness in Arkansas, USA. Virol Mycol S2: 004.

12. Reksodiputro AH (2015) Multicentre Epidemiology and Survival Study of B cell Non Hodgkin Lymphoma Patients in Indonesia. J Blood Disord Transfus 6: 257.

13. Yassin K, Elfil AMH (2015) Epidemiology of Cardiac Disease during Pregnancy in Khartoum Hospital, Sudan. J Women's Health Care 4: 227.

14. Zhang C, Zhang Y (2015) Estradiol and Risk of Ultrasonography-Diagnosed Nonalcoholic Fatty Liver Disease in Overweight and Non-Overweight Populations:A Nested Case Control Study of Chinese Men. Metabolomics 5: 141.

15. Jana P, Omar S (2015) Epidemiology and Genetics of Alzheimer's disease. J Alzheimers Dis Parkinsonism 5: 176.

16. Bessat M (2015) Leishmaniasis: Epidemiology, Control and Future Perspectives with Special Emphasis on Egypt. J Trop Dis 3: 153.

17. Pirasath S, Gnanathasan A (2015) Epidemic Poisoning with Snakes in Eastern Sri Lanka; Epidemiological and Clinical Features in Batticaloa District. Epidemiollogy.

18. Bayissa ZB, Gelaw BK (2015) Knowledge and Practice of Mothers towards Exclusive Breastfeeding and Its Associated Factors in Ambo Woreda West Shoa Zone Oromia Region, Ethiopia. Epidemiollogy.

19. Farrag A, El-Eraky A (2015) Obesity and Other Cardiovascular Risk Factors in Egyptian University Students:Magnitude of the Problem. Epidemiollogy.

20. Dang J, Manrique HXZ (2015) Oral Human Papillomavirus.

21. Bekele T, Gebremariam A (2015) Factors Associated with Contraceptive Discontinuation in Agarfa District, Bale Zone, South East Ethiopia. Epidemiollogy.

22. Borges LSR (2014) Visceral Fat and Association with Metabolic Risk Factors. Epidemiol 4: E118.

23. Megid J (2015) Vaccinia Virus:It's Use in Smallpox Vaccine and Epidemiology. J Vaccines Vaccin 6: 261.

24. Peculi A, Campese E (2015) Genotyping of Bacillus anthracis Strains Circulating in Albania. J Bioterror Biodef 6: 131.

25. Sharma S, Joshi G (2015) Laboratory Investigation and Molecular Epidemiology of H1N1 pdm Virus 2012;-2013 from India. J Phylogenetics Evol Biol 3: 139.

26. Konduru JR (2015) Review on Adverse Drug Reactions. Adv Pharmacoepidemiol Drug Saf 4: R005.

27. Caacuteceres MC, Moyano P (2015) Trends in Antihypertensive Drug Use in Spanish Primary Health Care.

28. Caffrey AR, Noh E (2015) The Effects of Obesity on the Comparative Effectiveness of Linezolid and Vancomycin in Suspected Methicillin-Resistant Staphylococcus aureus Pneumonia. Adv Pharmacoepidemiol Drug Saf 4: 176.

29. Garlapati S (2015) Risk Management Plan Its Importance and Emphasys on Pharmacovigilance Activities. Adv Pharmacoepidemiol Drug Saf 4: e128.

30. Guo Y, Li Y (2015) Clinical Characteristics of Systemic Lupus Erythematosus Patients with Coronary Artery Disease: A Matched Study. Adv Pharmacoepidemiol Drug Saf 4: 173.

31. Fredy IC, Palatty PL (2015) Cardiovascular Medicine Safety Profile Evaluation among Urban Private Hospitals. Adv Pharmacoepidemiol Drug Saf 4: 175.

32. Rao KN, Reddy GN (2015) Analyzing Burden of Cost of Therapy in Patients Affected with Acute Coronary Syndrome in Tertiary Care Hospital. Adv Pharmacoepidemiol Drug Saf 4: 174.

33. LeviSetti PE (2014) Considerations on Clinical Assessment and Epidemiology of Fertility. JFIV Reprod Med Genet 3: e111.

34. Vega JA, Ochoa PS (2015) Comparison of 24-Hour Urine to Estimated Renal Function using CKD-EPI, MDRD4 and Cockcroft-Gault in Specific Patient Subsets. J Pharma Care Health Sys 2: 1.

35. Gerald MF, Poureslami I (2014) Perception, Cultural Norm, and Self-Efficacy:Edges of Smoking Habit Triangle among Chinese Adult Smokers. J Community Med Health Educ 4: 324.

36. Tzouveka E (2014) 2015 Epidemiology and Risk Factors of Melasma. Pigmentary Disorders S1: 002.

37. Pasco JA, Holloway KL (2014) Characteristics of Female Nonagenarian Participants in an Observational Health Study. J Gerontol Geriatr Res 3: 184.

38. Allen N, Ribbans WJ (2015) Musculoskeletal Injuries in Dance: A Systematic Review. Int J Phys Med Rehabil 3: 252.

39. Aga AM, Hurisa B (2014) Epidemiological Survey of Snake Bite in Ethiopia. Epidemiollogy.

40. Lung FW, Chiang TL (2014) The Disparity between Parental Education and Urban Resident through Residential Mobility in Child Development:Taiwan Birth Cohort Study. Epidemiollogy.

41. Kongsgard HW (2014) SMS Phone Surveys and Mass-Messaging: Promises and Pitfalls. Epidemiollogy.

42. Mahe ER (2014) Independent Prognostic Factors: When is Enough Enough? Epidemiollogy.

43. Indridason H, Gudmundsson S (2014) Long Term Nationwide Analysis of HIV and AIDS in Iceland, 1983-2012. J AIDS Clin Res 5: 387.

44. Ding X, Du J (2014) The Epidemiology and Treatment of Vitiligo:A Chinese Perspective. Pigmentary Disorders 1: 148.

45. Adeoye AM, Balogun WO (2013) Prevalence of Hypertension and Association with Increased Body Mass in a Semi-Urban Settlement in Nigeria. J Hypertens 3: 186.

46. Kim SH (2014) Trend of Male Circumcision and HIV Prevention of Heterosexually Acquired HIV in A Special Population: South Korea. Adv Pharmacoepidemiol Drug Saf 3: 171.

47. Taniguchi J, Yoshinaga M (2014) Longitudinal Changes in Clinical Epidemiology and Drug Sensitivity of Community-associated Methicillin-Resistant Staphylococcus Aureus in a Tertiary Hospital in Japan. J Infect Dis Ther 2: 172.

48. Arzenton E, Magro L (2014) Acute Hepatitis Caused by Green Tea Infusion:A Case Report. Adv Pharmacoepidemiol Drug Saf 3:170.

49. Kauser MM, Kinnera S (2014) Study of Mortality Pattern in Adults at a Tertiary Care Teaching Hospital in South India. Medical and Health Sciences.

50. Rani AP, Saikishore V (2013) The Potential Role of Curcumin in Cancer Prevention and Treatment. Journal of Pharmacy and Pharmaceutical Sciences.

51. Holloway KL, Moloney NDM (2014) Foot and Ankle Fracture Incidence in South-Eastern Australia:An Epidemiological Study. Clin Res Foot Ankle 2: 148.

52. Kamali F (2014) Are Novel Oral Anticoagulants (Noacs) as Safe as They are Said to Be? Adv Pharmacoepidemiol Drug Saf 3:e126.

53. Garlapati S (2014) It's All about Signals, Risk Management and How Important These Are? Adv Pharmacoepidemiol Drug Saf 3: e127.

54. Gelaw BK, Mohammed A (2014) Non Adherence and Contributing Factors among Ambulatory Patients with Anti Diabetic Medications in Adama Referral Hospital. Adv Pharmacoepidemiol Drug Saf 3: 169.

55. Nguyen D, Banerjee N (2014) Trainees' Attitudes and Preferences towards the Use of Over the Counter Analgesics in Patients with Chronic Liver Disease. Adv Pharmacoepidemiol Drug Saf 3: 167.

56. Hua WJ (2014) The Role of Transporters in the Pharmacokinetics of Antibiotics. Adv Pharmacoepidemiol Drug Saf 3: 168.

57. Konduru J (2014) Effects of Drugs. Adv Pharmacoepidemiol Drug Saf 3: R004.

58. Datar P (2014) Development of Opthalmic Formulation for Dry Eye Syndrome. Adv Pharmacoepidemiol Drug Saf 3: 166.

59. Yerramilli A, Veerla S (2014) A Pharmacovigilance Study Using Tracer Techniques. Adv Pharmacoepidemiol Drug Saf 3: 165.

60. Konduru J (2014) A Review on Antiplatelet Drugs and Anticoagulants. Adv Pharmacoepidemiol Drug Saf 3: R003.