Name =

Shahab Ali

ID # =

13801

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Assignment,

Teaching methodology and community Medicine.

Submitted To.

Dr. M. Shahzeb Khan.

Question No 1

How will you conduct "case control study. Explain it with Example :-

A case control study is a type of observational study in which two existing groups differing in outcome are identified and compared on the basis of some supposed causal attribute case control studies are often used to identify factors that may contribute to a medical condition by comparing subjects who have that condition (disease (the case) with patients who do not have the condition (disease but are otherwise similar (controls)

conducting a case control study :-

There are five steps in conducting a case control study.

1. Define a study population: (source of cases and controls) controls must have as similar a background as possible to the cases except they do not have the outcome.

in question. They should come from the same population as the cases. Their selection should be independent of the exposures of the presence of risk factors are best ideally carried out in a blind assessment or before the cases and controls are identify (i-e they do not know who is a control or not

(2) Define and select cases:

Identification of cases can be made from the general population using health register and data or from a particular medical setting. The criteria for diagnosis of case should be defined used for selection diagnostic criteria should be sensitive and specific (i-e strict)

Information on diseases can be got from death certificates disease register medical records or population survey for rare disease cases may have to sought from large areas or over many years.

Define and select controls:-

This is a very important step. Get this wrong and you introduce bias into the study controls should represent the population that the cases come from (i-e they should be at risk of becoming new cases).

Ratio to causes is usually 1:1 If cases are limited, you can have up to 4 controls : 1 case, Some time will be needed in considering the way in which the cases and controls, which make up the study will be chosen more heterogeneity in the cases, less likihood of being able to link a specific risk factor, to the disease causation But narrower the category of disease for inclusion as cause less general applicability the finding will have.

Source of controls: Hospital

People have taken controls from a hospital population because they maintain that the controls are in some way matched to the hospital cases. However, they are people with other risk factors, for example, you could be comparing people with lung cancer with people with broken legs, people who break their legs are not the some as all those who develop lung cancer, the controls may have different disease to the cases, which may have

an effect on the result.

Source of controls: General population

Controls can be taken from the community the causes are from or from a different population. The controls may be healthy or may have other disease.

4) Measure Exposure:-

The measurment of exposures must be collected in a comparable way for cases and controls. It is both blinding control status of participants or at least blind them to the main hypothesis of the study. This should help prevent measurement or researcher bias.

Exposure information can come from records or can be via an interview or questionaire.

5) Estimate disease risk associated with exposure:

Traditionally data from case control studies are set in a 2 by 2 or fourfold table It is unlike cohort studies (where study population is denominator and incidence rate can be coleulate for disease as people are affected and relative risk can calculated)

Because there is no population based data in case control studies result are best expressed as odds ratio (is the ratio of exposed to non-exposed in the case group divided by same ratio in the control group) when the number with disease is small compared with the number unaffected, the odds ratio is closer in value to the relative risk, which is a population, based estimate derived from cohort studies

Example:-

In 1940 Sir Norman Gregg, an Australian opthalmologist observed a number of infants and lung children in his opthalmology practice who presented with an unusual form of cataract.

Gregg noted that these children had been in utero during the time of a rubella (German measle) out break. He suggested that there was an associated between prenatal rubella exposure and the development of the unusual cataracts.

keep in mind that at that time there was no knowledge that a virus could be teratogenic

Thus, he proposed his hypothesis solely on the basis of observational data the equivalent of data from ambulatory or beside practice today.

Question 2

How will you conduct cohort study.
Explain it with example.

Cohort studies are a type of medical research used to investigate the causes of disease and to establish links between risk factor and health outcomes.

Conducting a cohort study:-

There are five main steps in conducting a cohort study

1) Select cohort population:-

All participants (both exposed and unexposed) in a cohort study must be at risk of developing the outcome control should be similar to the exposed in all important aspects, except for the lack of exposure. This will reveal the background rate of the outcome in the community, for common exposures (e.g smoking), a general population cohort is good it enable internal comparisons of exposure can be. Status and the population can be motivated and easy to follow up for rare exposure The cohort may be defined by geography (environmental exposure or cohort could be defined by occupation e.g asbestos workers.

(2) Measure exposure to risk factors:-
cohort studies should have a clear, unambiguous definition a clear of the exposure at the outset Measurment can consist of records, enviromental monitoring lifestyle questionaire or a clinical, biochemical / molecular measurement.

(3) follow up:-
This is a challenge Drop outs affect the study's validity. Drop outs are not random events. If the likelihood of droping out is related to the exposure and outcome then bias can result for example, if people are suffering side effects from a particular drug they may drop out and so the drug may looke better than actually is to optimise follow up, try to get a stable population motivate them and do regular contacting and tracing.

4) Measure disease outcome:-
outcome must be defined in advance and should be clear specific and measurable, outcome can be measured with records. interview or examinations.

5) Estimate disease risk associated with exposure

(8)

Risk can be measured with relative risk (a measure of the extent to which those exposed to a risk factor are likely to get the disease compared with the non-exposed group) absolute risk factor)
attributable risk (this is the difference in the incidence of a disease between the exposed and the non-exposed group)

Example:-

one famous example of a cohort study is the Nurses, health study, a large, long running analysis of woman health originally set up in consequences of the use of oral contraceptives.