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Q no 2 - 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 group are differing in outcome are identified and compared on the basis of some supposed causal attribute. Case control study are often used to identified factor that may contribute to a medical condition by comparing subject who have that condition/disease (the cases) with patient who do not have the condition (doseas but are otherwise similar (control)

⇒ Conducting a case control study

→ There are five steps in conducting a case control study.

No 1 → defining a study population.

(source of cases and control)

control must have as similar a background as possible to the cases except that they do not have the outcome in question they should come from the same population as the cases their selection should be independent

- the exposure of interest - objective measure of the presence of risk or best ideally carried out in a "blind" assessment or before the cases and control are identified (i.e. they do not ~~know~~ know who is a control or not)

2 ⇒ Define and Select cases.

- identification of cases can be made from the general population used. using health register and data or from a particular medical sitting the criteria for diagnosis of a case should be defined as well as the eligibility criteria used for selection The diagnostics criteria should be sensitive and specific i.e (strict)
- information and disease can be got from death certificates disease registers, medical records population survey for rare diseases cases may have to sought from large areas or after many years.

(3) Defining and Select Control

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

Ratio to cases is usually 1:1 If cases are limited you can you can have up to 4 control : 1 case sometime will be needed.

In considering the way in which the cases and control which make up the study will be chosen. More heterogeneity in the cases less confident of being able to infer a specific risk factor to the disease. Conversely but Narrower the category of disease for inclusion as cases less than general applicability the finding will have

Source & control hospital.

- people have taken control from a hospital population because they maintain that the control are in some way matched the hospital cases However they are people

with other Risk factor for.
example you could be comparing people with lung cancer with people with broken legs- people who break their legs are not be same as all those who developed lung cancer. The control may have different diseases to the cases which may have effect on the results.

⇒ Source of control group population
- the control can be taken from the community the case are from. or from a different population the control may be healthy or may have other diseases.

4 Measure exposure:-
The measurment of exposure must be collected in a comparable way for cases and control. it is worth binding the data gatherers to case or control status of participant or at least blind them to the main hypothesis of the study this should help prevent measurment or researcher bias exposure. information

can come from researcher. records or can be via interview or questionaire.

(5) **esstimates disease risk with exposure.**

traditionally data from case control studies are from 2 in a 2 by 2 or four fourfold table it is unlike control studies where study population is denominators. and incidence rate can be calculated. for the disease. as people are affected and relative risk can be calculated) Because their is no population based data. and case control study result are. best expressed in odds ~~ratio~~ ratio (the ratio of exposed to non exposed. in the case group devided by the same ratio in the control group) when the Number with disease is small compared with the plumber unaffected. the odd ratio is closure in value to the relative risk. which is a. population based estimate.

derived from cohort study

examples- in 1940 Sir Norman Gregg an australian ophthalmologist observed a. Number of ~~the~~ infants and young

children in his opthalmology practice. who presented with an unusual form of cataract.

Gregg noticed that these children had been in utero during the time of a rubella (German. Measles) out break He suggested that their was an association. Between prenatal rubella exposure and the development of unusual cataract. Keep in mind that at that. There was no knowledge. that a virus could teiragenic

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

Q NO2

How will you conduct cahart Study explain it with example.

=> cahart is a type of medical research ~~you~~ used to investigate the causes of disease. and to establish link Between. Risk factor and outcome.

=> conducting a chart Study

→ There are five main step to conducting a cahart Study

1 Select Cahart population

→ all participant Both (exposed and non exposed) in a cahart Study Must Be at risk of developing the outcome control should be semilar to the exposed in all important ~~ex~~ aspects. except for the case of exposure. They will the Background rate of the outcome in the Community For common exposure (ex. Smoking) a general population cahart is good as it enables internal comparisons of exposure status and the population can be monitored and easy to follow up for ~~for~~ more exposures the cahart may

be defined by geography environmental exposure. or cohort could be defined by occupation e.g asbestos workers.

=> Measure exposure to risk factors

cohort study have unambiguous definition of the exposure at the ~~out~~ set measurement can consist a records. environmental monitoring lifestyle. questionnaire or a clinical / biochemical / molecular measurement

(3) Follow up

→ This is a challenge drop out affect the study validity drop out one not random ~~events~~ events if the likelihood of dropping out is related to the exposure and outcome. Then Bias can result -

for exampee- if people are suffering side effects from a particular ~~drug~~ drugs that may drop out and so the drug may look better than ~~drop~~

If people are suffering side effects from a particular drug they may drop out and so the drug may look better. therefore it actually 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 record. interview or examination

=> estimate disease risk associated with exposure.

-> Risk can be measured with relative risk. (a measure of the extent to which those exposed to a risk factors are likely to get the disease compared with the non exposed group) absolute risk (this is the incidence rate for a group exposed to risk factor

attributable risk (this is the differen

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 Healthy Study a long running analysis of women health originally set up in consequence of use of oral contraceptives.